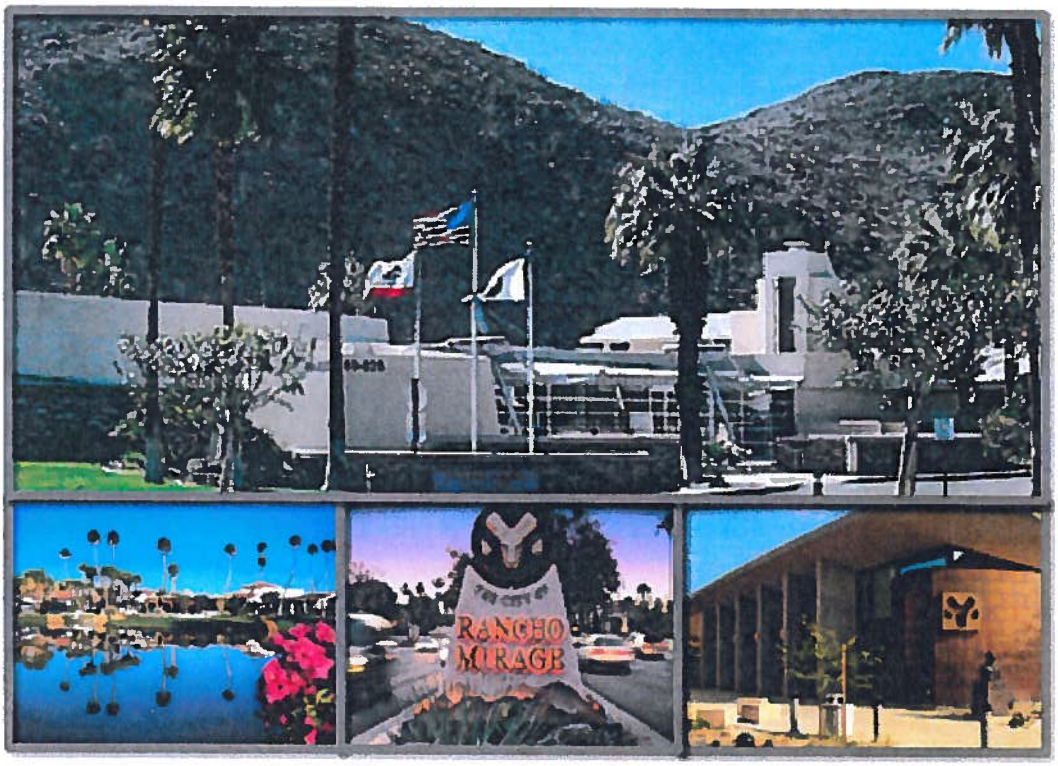
Rancho Mirage Sustainability Plan

March 2013



2013 Sustainability Action Plan: Leadership in Energy Efficiency

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This report is in part funded by California utility ratepayers and administered by Southern California Edison under the auspices of the California Public Utilities Commission

Acknowledgements

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I. Executive Summary

The City of Rancho Mirage is proud to have completed this report, the 2012 Sustainability Plan: Leadership in Energy Efficiency (Plan). It falls within a broader sustainability planning context supported by Southern California Edison (SCE) and its ratepayers in a program called Green for Life.

With this Plan, Rancho Mirage is joining an increasing number of California local governments committed to addressing climate change at the local level. The City is taking action now to reduce greenhouse gas (GHG) emissions within its own operations and within the overall community. With a recently completed Greenhouse Gas Inventory, Rancho Mirage is prepared to set GHG reduction goals and measure progress toward these goals, including the statewide target of 1990 levels by 2020, set by AB 32. Rancho Mirage will use common sense approaches to reduce energy use and waste, create local jobs, improve air quality, preserve our local landscape and history, and in other ways benefit the City for years to come.

The city limits of Rancho Mirage include Indian Reservation land. The Agua Caliente Band of Cahuilla Indians Reservation land constitutes approximately 11% of the total built-out acreage within the city limits. (See the 2010 Agua Caliente Greenhouse Gas Inventory prepared by CVAG for a full explanation of how Reservation and Tribal emissions are accounted for in the overlap of jurisdictions.)

The Sustainability Plan is a framework for the development and implementation of policies and programs that will reduce the City's GHG emissions. It addresses the major sources of emissions in seven spheres of daily life:


Where We Live (LIVE)


Where We Work (WORK)


How We Build (BUILD)


How We Get Around (MOBILITY)


How We Govern (GOVERN)


Where We Visit and Play (RECREATE)


How We Teach and Learn (LEARN)

For each sphere, the Plan suggests a number of programs or policies that can be implemented by Rancho Mirage to meet its goals by the year 2020. These measures are linked with the City's Greenhouse Gas Inventory. A portfolio of 82 measures has been selected for implementation over the eight years between now and 2020. Some of the measures have been planned or are even in the process of being implemented by the City, and are included because of their anticipated impact. Each recommendation carries information about how the measure will benefit the community and approximately what it will cost the City.

This Plan is the root of a comprehensive suite of sustainability services including the City's 2010 Greenhouse Gas Inventory (GHG Inventory),[1] its 2012 Energy Action Plan,[2] a Voluntary Green Building Program[3], a municipal building Energy Benchmarking Policy[4], and a municipal building Retro-Commissioning Policy[5]. Together, they support this Plan and help position the City for cost-effective energy efficiency savings and carbon footprint reductions.

Energy Efficiency

The subtitle "Leadership in Energy Efficiency" defines the Plan. Energy efficiency provides rich opportunities for Rancho Mirage and guides the City to the most cost-effective GHG reduction measures. Taking steps to improve energy efficiency also leads to expanded educational opportunities, job creation/retention, and economic development. For example, jobs for specialized construction trades, incorporating green building methods and technologies, including weatherproofing houses, providing energy audits, utilizing new technologies or upgraded equipment will be created. Programs that keep electricity costs low provided by the City or SCE help attract and retain businesses. This type of economic development is a top city priority.

Many energy efficiency measures are simple and cost-effective. Homes that are not properly sealed in desert summers increase the demand for air conditioning and can be drafty in the winter. Buildings of all kinds can be upgraded with significant results, as can older appliances. Energy Champions and Model Energy Citizens can be heralded through Council recognition.

Behavioral change to conserve and maximize the value of energy is nearly free and can also result in significant levels of dollar and energy savings, often during periods of peak electricity demand. Measures such as these are planned by Rancho Mirage, building on a track record of community-wide energy efficiency and sustainability.

Sustainability Plan Targets

Based on the City's 2010 GHG Inventory baseline, if Rancho Mirage were to continue with "Business as Usual," its GHG emissions will expand as a result of population growth and increasing use of energy for comfort and convenience. The projection for City emissions to 2020 is shown in Figure 1.

[1] City of Rancho Mirage 2010 Greenhouse Gas Inventory, prepared by CVAG, June 2012. G4L Section III.
[2] City of Rancho Mirage 2012 Energy Action Plan, prepared by CVAG, September 2012. G4L Section II.
[3] City of Rancho Mirage Voluntary Green Building Program prepared by CVAG, June 2012, Adopted by the City of Rancho Mirage, July 2012. G4L Section IV.
[4] City of Rancho Mirage municipal Building Energy Benchmarking Policy, prepared by CVAG, June 2012. Appendix B.
[5] City of Rancho Mirage Retro-Commissioning Policy, prepared by CVAG, June 2012. Appendix C.

Figure 1: Rancho Mirage Emissions Projections to 2020

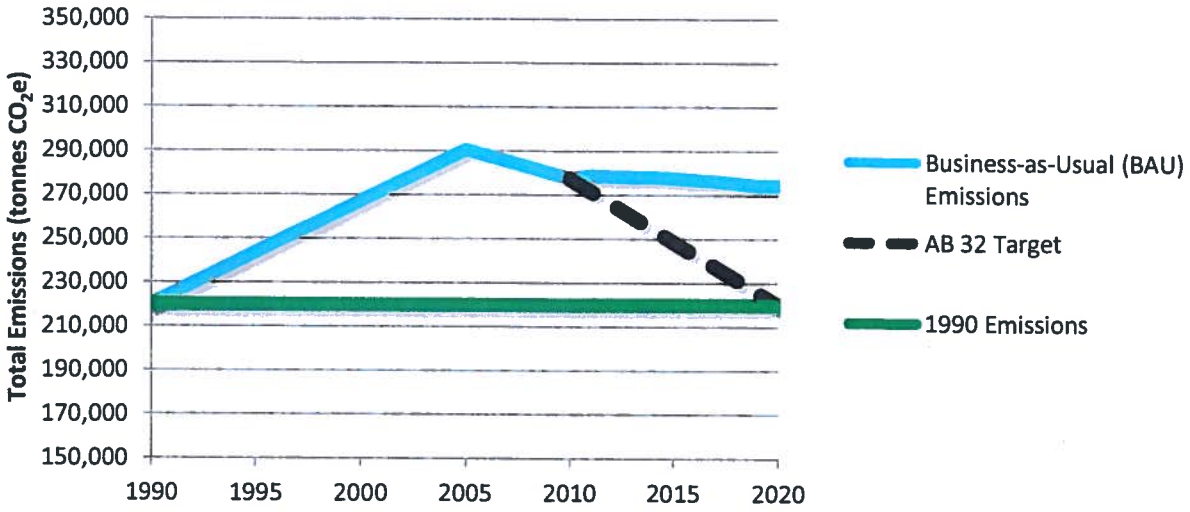


Figure 1 summarizes the position of Rancho Mirage based on available data from 1990, 2005, and 2010. The light blue line shows the trajectory the City's GHG emissions will follow given modest population growth and continued implementation of state and federal emissions reduction programs. The green line shows the 1990 emissions levels based on 2010 backcasted estimates. The dashed line represents the path Rancho Mirage must follow to achieve 1990 emissions reduction goals consistent with AB 32.

The emissions reductions goals are summarized in Table 1. These goals are a direct result of the findings contained in the GHG Inventory that can be found in Section III. The standard measurement for emissions is metric tons of carbon dioxide, or "tonnes" of CO_2. In the inventory process, other GHGs are converted to equivalents of carbon dioxide, or "CO_2e."

For Rancho Mirage to achieve the statewide target of 1990 levels by 2020, it will have to reduce emissions by 54,272 tonnes, a 19.8% reduction. However, to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would limit dangerous impacts to Earth's climate system, a reduction in GHG levels to 7% below 1990 levels is recommended.

Based on a 2010 population of 17,218, the 2010 total emissions represent a footprint of 16.1 tonnes per person, or per capita. To reach 1990 targets with a 2020 projected population of 18,653[6] would require a per capita reduction of less than 3 tonnes. If the City seeks to reach the more ambitious target of 7% below 1990 levels (additional 15,404.27 tonnes), the per capita reduction required would be slightly less than one additional tonne (.82 tonnes), for a total of 3.7 tonnes.

Per Capita Reduction

2.9

Metric tonnes of CO_2e to meet the AB 32 1990 Target

[6] Riverside County 2011 Progress Report, www.tlma.co.riverside.ca.us/rcd/content/progress.aspx

Table 1: Rancho Mirage Emissions Reduction Targets

Scenario	Total Emissions (Tonnes CO_2e)	Tonnes over 1990	% Reduction Needed
1990 Emissions Level	220,061	-	-
2010 Baseline	277,698	57,637	20.8%
2020 Business-as-Usual	274,333	54,272	19.8%

The Sustainability Plan is an implementation plan for Rancho Mirage to reach target emissions reductions by applying policies, programs, and initiatives.

Summary of Costs and Benefits

Measures suggested in this Plan represent a total cost to the City of approximately $2.15 million over eight years. These measures once implemented should leverage savings of nearly than $25 million per year throughout the community, while creating/retaining jobs[7] in the community.

This savings to the community will help stimulate the economy by lowering utility bills for homes and businesses. For residents, lower utility bills will give them increased disposable income that may be now spent locally on daily needs and indulgences. Utility savings can be utilized for further efficiency upgrades, college funds, retirement funds or other investment instruments. For businesses, these efficiency measures will assist in lowering operating costs and thus increasing profitability. Businesses will benefit from the additional disposable income of the region's residents, giving these businesses the ability to grow by capturing more sales revenue and as a result creating more jobs. Visitors will become aware that the region cares deeply about the environment, increasing interest and tourism in the desert area.

Local governments benefit from these sustainability actions too. When communities are thriving with dollars being spent and jobs being created locally, local governments benefit from the increased property tax, sales tax, and economic development. This Plan will also increase opportunities for grant funding to support efficiency and sustainability measures, as granting agencies are increasingly requiring applicants to have these kinds of plans in place.

Once implemented, the energy efficiency measures presented will reduce Rancho Mirage's GHG emissions by 60,411 tonnes, 6,139 tonnes over the target amount of 54,272 tonnes. The surplus in GHG tonne reductions over and above the target allows the City Council and staff some flexibility in the selection and implementation of these measures.

[7] Jobs are estimated based on an annual full-time equivalent job created for every $100,000 of investment.

Acknowledgements

The City of Rancho Mirage appreciates SCE's guidance on developing win-win energy efficiency strategies to save money and protect the environment. Through the Green for Life program administered by the Coachella Valley Association of Governments (CVAG), the City has developed valuable tools and resources to meet state requirements such as the Global Warming Solutions Act Assembly Bill 32 to lower the City's GHG emissions to 1990 levels by 2020.

Through funding provided by the California Public Utilities Commission (CPUC), SCE has supported the identification and development of energy efficiency measures within this Plan. Support from SCE and the CPUC has been a tremendous benefit, allowing Rancho Mirage and other cities and Tribes to complete the elements of this Plan. The City views sustainability in a broad context that integrates energy efficiency with waste diversion, water use, and transportation.

Given the integrated planning context desired and the SCE Strategic Plan funding requirements, CVAG has arranged for supplemental funds from Riverside County for the research and development of the balance of the Plan's non-energy efficiency elements. The City is grateful for this special support to make the Plan most useful in implementation.

II. Sustainability Planning

Reduction of
54,272
Metric tonnes of
CO_2e
to meet AB 32 by
2020

This City of Rancho Mirage 2012 Sustainability Plan is a guide for action. It takes knowledge gained from the GHG Inventory and the community, sets emissions reduction goals, and applies policies, programs, and initiatives to reach them. GHG reduction measures detailed later in this Plan will save energy and money, while creating jobs and reducing the City's carbon footprint.

The City will use this Plan as its roadmap for making efficiency decisions based on achieving the largest and most cost-effective emissions reductions that are aligned with other city goals, such as working collaboratively on health and safety issues.

Purpose and Compliance

In 2006 California passed the Global Warming Solutions Act (Assembly Bill 32 or AB 32), which gave a new impetus to measuring and reducing energy use and GHG emissions. The goal California set with AB 32 is to reduce GHG emissions to 1990 levels by the year 2020. Governor Arnold Schwarzenegger's Executive Order S-03-05 set an even more aggressive goal—80% below 1990 levels by 2050—and identified local governments as key partners in reaching these goals.

Thanks to aggressive statewide programs, California's emissions have remained relatively stable over the past 15 years. According to the Energy Information Administration of the U.S. Department of Energy, only Vermont, New York, Idaho, and Rhode Island have smaller per capita carbon footprints than California.

The California Air Resources Board (CARB) has been instructed to implement AB 32. Its Climate Change Scoping Plan[8] was approved in 2008 and readopted in 2011 and outlines the state's plan to achieve GHG reductions required in AB 32. In the Scoping Plan, CARB encourages local governments to adopt a reduction goal for GHG emissions from municipal operations and move towards establishing similar goals for community-wide emissions that parallel the state's commitment to reduce GHGs.

While no directives have been issued on AB 32 implementation for local governments at this time, activity in the realm of emissions measurement and reduction is ramping up:

- On January 1, 2012, California's Cap-and-Trade regulation became effective. Part of the State's plan to meet AB 32 targets, this plan assigns 85% of all major emitters a "cap" on emissions, and forces them to either reduce emissions to meet the cap or to buy (or "trade" for) offsets to meet their target.

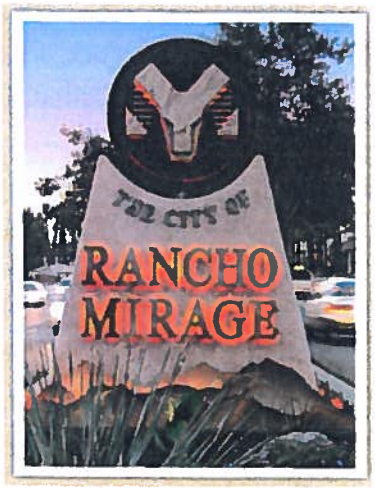
[8] "Climate Change Scoping Plan: A Framework for Change," California Air Resources Board, Pursuant to AB 32: The California Global Warming Solutions Act, December 2008.

- In June 2012, separate emissions reductions targets (8% below 2005 levels) for the Southern California region (which includes Rancho Mirage) were approved as part of Senate Bill 375 (SB 375) legislation. SB 375, originally passed in 2008, seeks to limit emissions through transportation and land use planning. The California Air Resources Board and the South Coast Air Quality Management District have taken the lead on implementing action to meet SB 375 goals. The Southern California Association of Governments (SCAG) has also taken a leadership role and has prepared a Sustainable Communities Strategy consistent with SB 375 for the region including CVAG's jurisdictional boundaries. A major focus of SB 375 is reducing Vehicle Miles Traveled (VMT) through land use policies.

- The California Attorney General continues to monitor and actively challenge GHG inventories or other aspects of environmental impact plans that are not deemed adequate. A recent case occurred in January 2012, when the adequacy of the Environmental Impact Report certified by the San Diego Association of Governments (SANDAG) for its 2050 Regional Transportation Plan was challenged and is pending a legal decision at this writing.

- California Environmental Quality Act (CEQA) compliance has been completed as part of the review and adoption of this Sustainability Plan. CEQA compliance will streamline the City's ability to implement energy efficiency requirements tied to future development within the city limits.

In an effort to stay ahead of impending regulations, this Sustainability Plan defines the City of Rancho Mirage's goal of complying, at a minimum, with statewide mandates to reduce GHG emissions. At the same time, through considered action, Rancho Mirage anticipates the following outcomes:



- Increase energy efficiency in local government operations and in community activities;
- Create new jobs in the community associated with smart energy management;
- Save money now being spent for energy and explore the establishment of a revolving fund whereby energy savings will be available for municipal and community programs to enhance energy efficiency and continue to reduce GHG emissions;
- Maintain or enhance the comfortable desert lifestyle of residents and visitors alike; and
- Bring the CVAG jurisdictions together for effective regional sustainability and climate action planning.

External Factors

Factors outside of the City's control will influence emissions, often to its benefit. For example, electricity production is getting cleaner, thanks to California's Renewable Portfolio Standard (RPS), requiring that utility energy portfolios include increasingly higher percentages of renewable energy. California's current goal is to achieve 33% energy production from renewable energy sources by the year 2020. The State also regulates the efficiency levels of new buildings, with more stringent requirements incorporated into each three-year cycle of updates to California's Building Standards Code (Title 24), including energy efficiency standards.

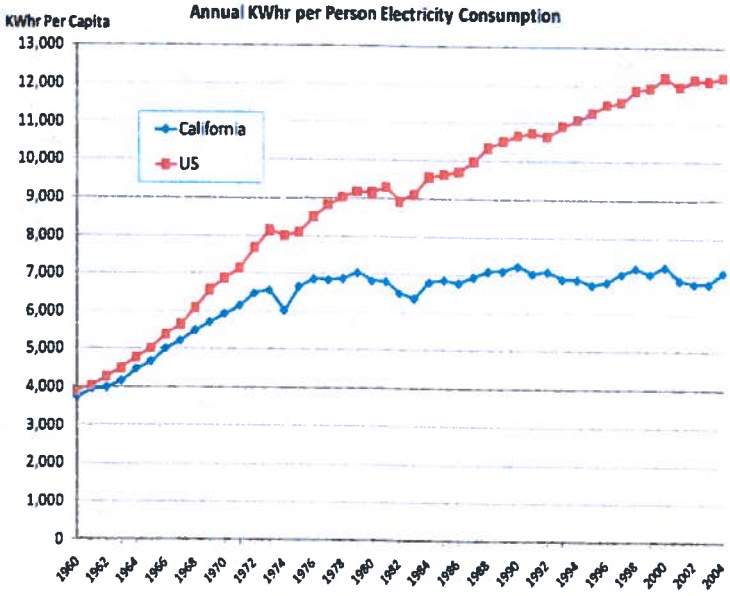
In 2008, the California Public Utilities Commission adopted California's first "Long Term Energy Efficiency Strategic Plan" which identifies energy efficiency goals and strategies. It offers strategies to achieve greater levels of efficiency across all electricity and natural gas use, including working toward goals for all new construction. The CPUC plan emphasizes energy efficiency as the highest priority resource in meeting California's energy needs. The goal for all new residential construction is to be zero net energy by 2020, and for all new commercial construction to follow by 2030 (California Energy Efficiency Strategic Plan, Zero Net Energy Action Plan: Commercial Building Sector 2010-2012).

A reduction of at least 10% in carbon intensity by 2020 is the basis of California's Low-Carbon Fuel Standard which requires that the mix of fuel sold in the California market meets declining targets for greenhouse gas (GHG) emissions. These standards, and other state and federal standards, mean that business as usual will be less carbon-intensive. Thus, these standards benefit emissions reduction goals of local jurisdictions, while imposing no direct costs.

California Leadership in Energy Efficiency

California is the nation's leader for energy efficiency and conservation. Its impressive track record began in 1974 with the formation of the California Energy Commission (CEC). Since then, and as depicted in the CEC graphic in Figure 2, although population has increased, per capita energy use in California has stayed relatively stable, while energy use per capita in the United States has increased 50%.[9] California's efforts have had a profoundly positive effect in terms of driving down GHG emissions and have saved Californians billions of dollars in energy costs.

Figure 2: California vs. U.S. Per Capita Electricity Consumption



[9] Integrated Energy Policy Report, Figure 1, California Energy Commission, 2007.

Concerns about GHG concentrations increasing to intolerable levels have been growing for decades. By the turn of the century, the Intergovernmental Panel on Climate Change (IPCC) had forged a broad consensus that human activity on earth ("anthropogenic" activity) is having an effect, and that climate patterns will change, and sea levels will rise.

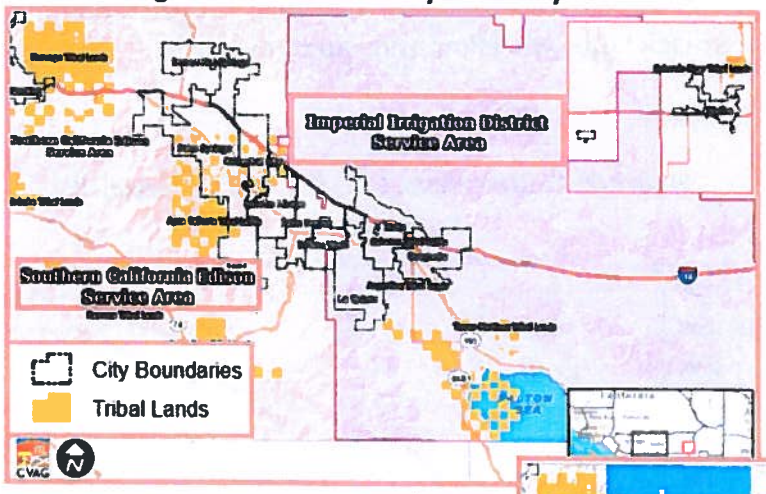
California's Emissions 2009

California emitted 452.97 million tonnes of GHG emissions in 2009, 12.2 tonnes per capita. Of this total, the largest emitters were transportation (172 million tonnes), electric power (104), residential and commercial fuel use (43), industry (81), agriculture—livestock, fertilizers, and general fuel use (32), and waste streams and landfills (7.3). Emissions were 5.8% lower in 2009 than 2008. Based on 2009 data, the State is 25 million tonnes from its 427 million tonne 1990 footprint1990-footprint goal.

Utility Leadership in the Coachella Valley

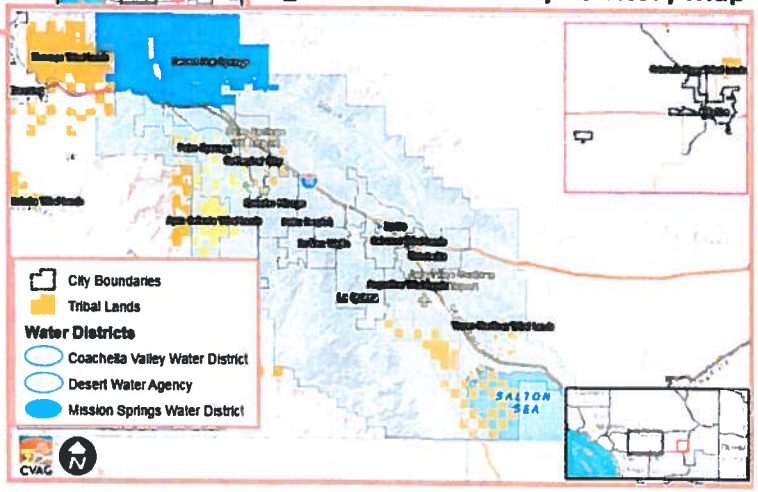
Located within the Coachella Valley, and as a member of CVAG, Rancho Mirage has benefitted from the support of local utilities through the Desert Cities Energy Partnership (DCEP). Southern California Edison (SCE), Southern California Gas Company (SoCalGas), Imperial Irrigation District (IID), Coachella Valley Water District (CVWD), Desert Water Agency (DWA), and Mission Springs Water District (MSWD) provide programs and services that have helped their customers save resources and money. Meanwhile, these utilities have investigated and implemented greening their own operations.

Figure 3: Electric Utility Territory



Reference to the savings impact and efficiency programs of the utilities serving Rancho Mirage can be found throughout the GHG Inventory and this Sustainability Action Plan. Figure 3 presents boundaries for both local electric utilities, SCE and IID. Figure 4 provides the boundaries for CVWD, DWA and MSWD.

Figure 4: Water Utility Territory Map



The Planning Process

This Sustainability Plan fits within an umbrella of sustainability efforts promoted by the Green for Life program. The program includes a number of tools to help local governments become more energy efficient, create savings, promote economic development and jobs, and stem the flow of dollars out of their communities and region.

The process is necessarily integrated, involving all forms of energy, water, and the life cycle of materials from "cradle to grave." This Sustainability Plan addresses the GHG impact of seven spheres of activity related to our daily activities.

The spheres address:

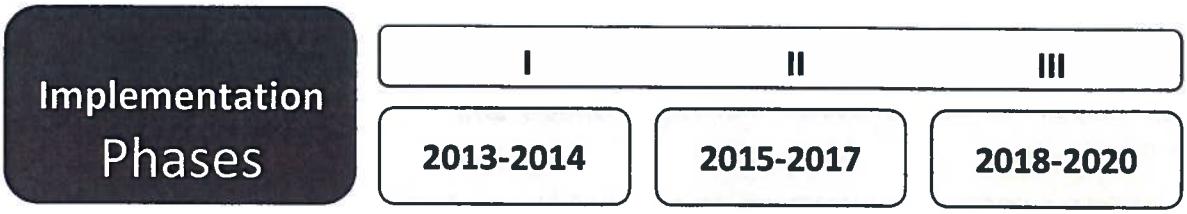
- Where We Live (LIVE)
- Where We Work (WORK)
- How We Build (BUILD)
- How We Get Around (MOBILITY)
- How We Govern (GOVERN)
- Where We Visit and Play (RECREATE)
- How We Teach and Learn (LEARN)

For each sphere, the Plan suggests a number of policies, programs, and initiatives that can be implemented by Rancho Mirage to meet its goals. The initiatives are also color-coded as presented in Figure 5, and linked with the GHG Inventory by sector, also referred to as "focus area." These focus areas will help the City: 1) target particular GHG sectors for emissions reductions (Cross-Cutting Initiatives and Governmental Initiatives span multiple GHG sectors when implemented); 2) readily identify the implementation cost and GHG savings; and 3) track overall progress.

Figure 5: Greenhouse Gas Focus Area Color Codes

For each sphere of activity, the Plan provides recommendations that include information about the cost of implementation and how the measure would impact the community. The Plan also indicates which measures are scheduled for immediate implementation, and which will be implemented in years to come.

Phase I measures are considered short-term and will be implemented within the next two years, 2013–2014. Phase II measures follow in 2015–2017. Phase III covers the 2018–2020 timeframe.



Calculating Potential Savings

Estimating the savings results of different energy actions or savings programs is an imprecise but instructive exercise. The measures recommended in this report were approached with these questions in mind:

- **Has the measure been successfully implemented elsewhere?**

  Directed research uncovers details on hundreds of programs that have been sponsored by utilities around the country and around the world. Closer to home, years of experience with both the design and the implementation of programs for SCE and SoCalGas provides a strong basis for predicting the likely uptake of a given program in the CVAG region as well as other desert regions. Both external and internal resources were used in predicting costs and results of the measures included in this Plan.

- **What special tools for measuring program results are available from the utilities?**

  The Statewide Energy Efficiency Collaborative (SEEC) provides support to cities and counties to help reduce GHG emissions and save energy. The partnership, consisting of non-profits and California's four investor-owned utilities, provides tools at no cost to users. SEEC's Community GHG Forecast Assistant is a spreadsheet designed to perform business-as-usual forecasts, including the effects of statewide and federally implemented programs such Corporate Average Fuel Economy Standards (CAFE) and the Renewable Portfolio Standard.[10] Rancho Mirage's 2010 GHG emissions were entered into the spreadsheet. Then, using growth rates projected by Riverside County Center for Demographic Research, Business-as-Usual emissions were estimated—with the impacts of federal and state programs. Assumptions used in the development of action measures appear within the tables for each planned phase of implementation.

[10] The Renewable Portfolio Standard (RPS) defines the percentage of renewables that California's investor-owned utilities have to achieve by specific dates. Utilities have been directed to achieve a 20% RPS by 2010 and a 33% RPS by 2020.

- **How does ICLEI (Local Governments for Sustainability) help quantify these reduction measures?**

  The GHG Inventory was completed using the Clean Air and Climate Protection (CACP) software, the industry standard as developed by Local Governments for Sustainability, or ICLEI. (The group was formed under the name International Council for Local Environmental Initiatives, and has retained the acronym.) ICLEI's Climate and Air Pollution Planning Assistant (CAPPA) provides more than 100 strategies for reducing GHG emissions and energy use. Each strategy estimates emissions savings through a set of assumptions that can be easily adjusted by the user. In the case of Rancho Mirage, assumptions were adjusted to reflect the unique climate and electricity mix of the City.

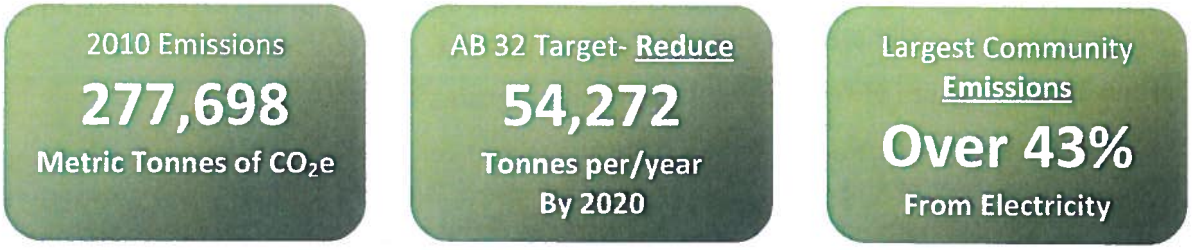
- **How can the results of "community outreach programs" be measured?**

  Many utility savings programs have been measured for their effectiveness, both from the point of view of the utility and of the consumer. The results of any given program must consider a number of factors. For instance, how many people would have made the change anyway ("free ridership"), and the utility's assumptions about energy savings. A rule of thumb followed by California utilities is that $1 of investment into a program emphasizing organizational or behavioral change results in $3 of energy savings. Specific programs, in California and elsewhere, have measured savings from 2%–15%. Uptake in the recommended programs and measures for this Plan were estimated based on experience and calculations; these assumptions are described in Tables 15 and 16. Actual savings will be tracked by the City.

III. 2010 Greenhouse Gas Inventory Results

Rancho Mirage has completed the 2010 Greenhouse Gas Inventory creating a path to sustainability. The inventory provides a detailed and clear analysis of the City's "carbon footprint," showing the sources and sectors of emissions, highlighting opportunities for emissions reductions that make sense for Rancho Mirage.

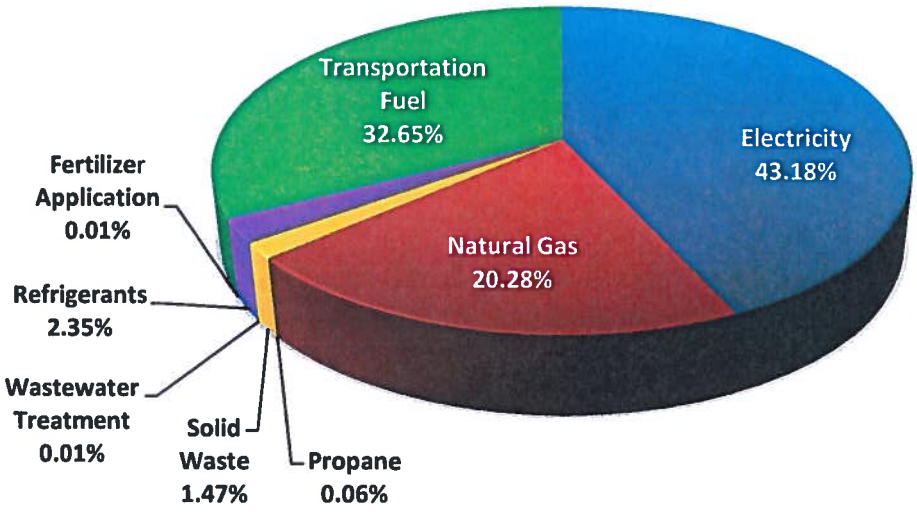
Highlights of the 2010 GHG Inventory for Rancho Mirage are included below. The full Inventory can be found in Section III.



- In 2010, Rancho Mirage emitted 277,698 metric tons (or tonnes) of CO_2e.
- To meet AB 32 targets, by 2020 the City needs to reduce its annual emissions by 54,272 tonnes.
- In 2010, the largest percentage of emissions—over 43%—came from the electricity used to power the City's homes, businesses, resorts, fountains, and streetlights.

The community's total emissions came from a number of sources, as shown in Figure 6:

Figure 6: Rancho Mirage 2010 Community Emissions by Source



Emissions Reductions Goals

Figure 7: Rancho Mirage Emissions Projections to 2020

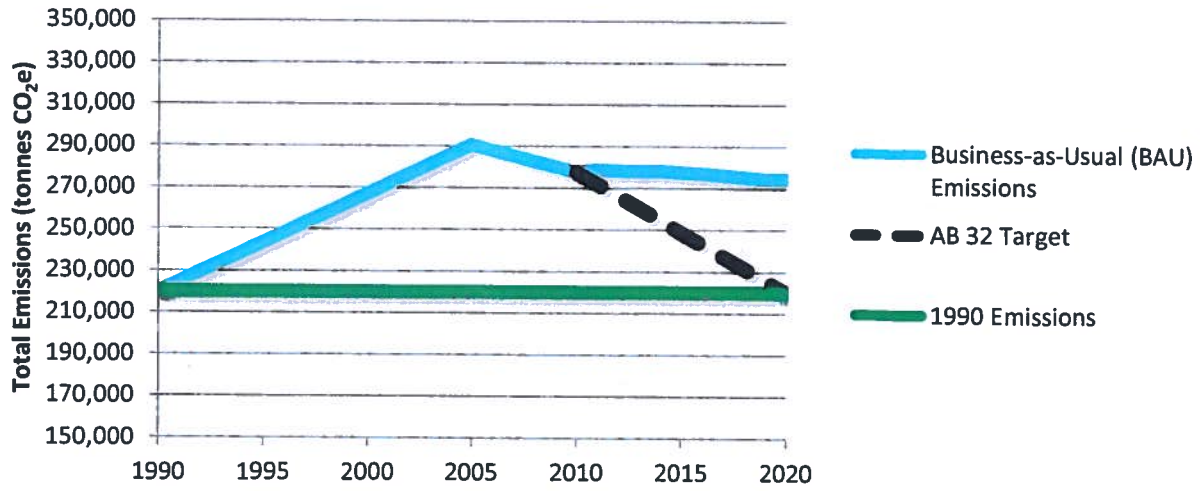
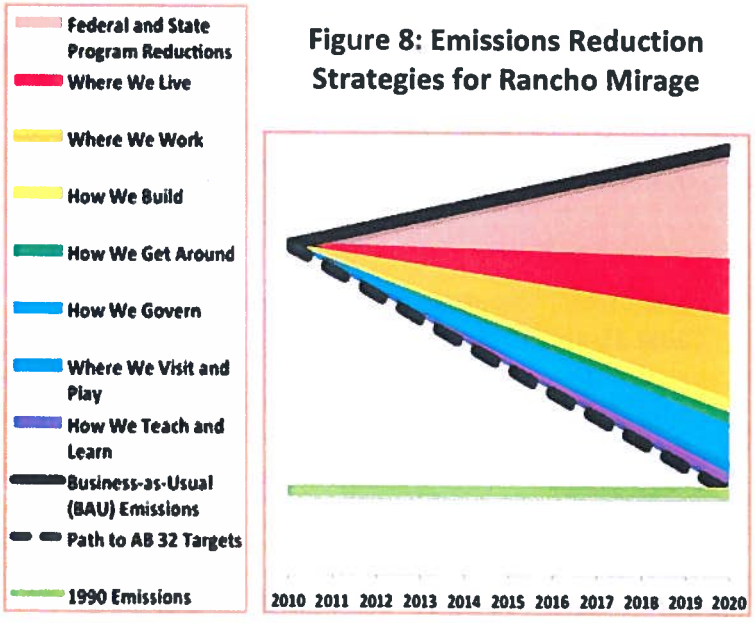


Figure 7 summarizes the position of Rancho Mirage based on available data from 1990, 2005 and 2010. The blue line shows the trajectory the City's GHG emissions will follow given modest population growth and continued implementation of state and federal emissions reduction programs. The green line shows the 1990 emission levels based on 2010 backcasted estimates. The dashed line represents the path Rancho Mirage must follow to achieve 1990 emissions reduction goals. City staff will track population growth annually and adjust the implementation of measures accordingly.

Portfolio of Savings Measures

Informed by the GHG inventory, and with goals set, the Plan presents savings measures to reduce emissions from different aspects of daily life, represented by "wedges" in Figure 5.

Figure 8: Emissions Reduction Strategies for Rancho Mirage



Error! Reference source not found. depicts broad areas/spheres of GHG reduction measures. In the absence of federal and state programs, the emissions would be much greater. The impact of federal and state programs will reduce emissions from current levels, but not enough to reach the 1990 levels. This Sustainability Plan presents specific measures for each of three phases of implementation to reach the AB 32 goal.

IV. Greenhouse Gas Reduction Opportunities

The City of Rancho Mirage has examined hundreds of opportunities for GHG reductions. They cover seven spheres of daily activity, and numerous types of initiatives within each sphere. A portfolio of 82 measures is presented that represent 60,411 tonnes of annual CO_2e savings, 10% over the required 54,272 tonnes to reach compliance with AB 32 levels.

The GHG emissions reductions measures shown in this Plan have been selected from suggestions and recommendations resulting from interviews with city officials and staff, from the public, and from best practices gleaned from around the country.

Each measure in the Plan has been chosen based on its suitability to the local climate, cost to the City, its efficacy within the community, and "do-ability" in the current economic climate. Efficiency measures are color-coded to link specific measures to the focus areas within the City's GHG Inventory. As mentioned earlier, these focus areas will help the City target particular GHG sectors for emission reductions; readily identify the implementation costs and GHG savings, and; track overall progress.

Assumptions for savings, uptake, and costs were developed as follows:

- Savings figures in tonnes CO_2e were calculated using ICLEI GHG inventory planning tools (the CACP calculator[11] and the CAPPA[12] tool). Data from the experience of other communities' experience with similar programs was used to inform uptake parameters.
- Many assumptions were formulated based on the local government's U.S. Census 2010 population and number of residential units.
- Costs were assumed to be those borne by the City. In many cases, costs for measures involve the estimated level of effort for an appropriate staff person. Given demands on staff already, services may need to be outsourced at the approximate costs presented. If the City uses staff time, absolute program costs will be lower.

Tables that rank the cost-effectiveness (efficacy) of each measure and that rank the cost of these initiatives to the City can be found in Table 15 and Table 16.

[11] CACP – Clean Air and Climate Protection software, by Local Governments for Sustainability USA (ICLEI), is a GHG accounting package specifically designed to support climate action planning.

[12] CAPPA – Climate and Air Pollution Planning Assistant, an ICLEI decision support tool designed to help U.S. local governments explore, identify, and analyze potential climate and air pollution emissions reduction opportunities.

Where We Live (LIVE)

- Household energy conservation and efficiency
- Household water conservation and efficiency
- Waste management and recycling
- Renewable energy systems
- Community education

The City of Rancho Mirage has a track record of promoting residential programs, from high efficiency pool pumps to energy efficient lighting. In some instances, the City has even added its own incentives on top of utility incentives. Since homes account for a large percentage of electricity use in the community, there is still considerable opportunity for efficiency gains and GHG reductions.

The City can promote simple steps for homeowners—encouraging them to replace light bulbs, exchange old, inefficient appliances for new ENERGY STAR varieties, and promoting sustainable and energy efficient remodeling. The Voluntary Green Building Program offers many valuable remodeling suggestions for property owners, such as heat reflective "cool roofs" and energy efficient insulation. Water conservation measures will result in energy savings associated with electricity costs embedded in water pumping and delivery.

The City can support more sophisticated steps including insulation and major Heating, Ventilation and Air Conditioning (HVAC) upgrades that make financial sense for local government, businesses, and residents. Air conditioning is the biggest electricity use in homes and businesses in the City. Rancho Mirage will continue to promote retrofits that pay back quickly as well as support regional Property Assessed Clean Energy (PACE) loans. Through a PACE financing program as opposed to a traditional bank loan, financing is provided for energy upgrades and repaid via a property tax assessment. CVAG is leading the regional PACE initiative with participation by its member jurisdictions; it is anticipated that such a program will be operable by 2013.

Household appliances and systems have dramatically advanced. New systems use less natural gas and electricity while providing superior comfort and more control. The City of Rancho Mirage can reinforce these messages, that residents and business can indeed embrace energy efficiency to save energy and money while reducing emissions. The City may wish to celebrate and offer awards to Solar "Model Citizens" at City Council and Planning Commission meetings. The opportunity to highlight the green efforts of the community can raise awareness levels further resulting in additional reductions in GHG emissions. Press releases and articles in the *MirageScape* can be released about residents that have invested in GHG emissions reduction activities to demonstrate the values of sustainable energy use to their neighbors and community.

City staff has been trained, as part of the Green for Life program, to offer assistance to city residents regarding energy efficiency upgrades and retrofits now available. The Voluntary Green Building Program helps staff show property owners how to integrate energy efficiency and green building into a dwelling remodel, a new building, or an emergency repair or replacement.

Note: Savings Measures

Tables in this chapter present measures from each of the seven spheres by phase. Tables 15 and 16 present all measures by efficacy in savings per tonne, and ranked by cost to the City. A list of proposed City Ordinances that cuts across all spheres is also presented in Table 17.

Table 2: Savings Measures for "Where We Live"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
LIVE - 1	Government Initiatives	Plan Checking and Permitting: Provide priority services and consider reducing permit fees for homes that exceed Title 24 building standards by 25% through energy-efficiency measures and renewable energy installations	II	1,305	$882,224	$35,000	$26.82
LIVE - 2	Renewable Energy	Solar "Model Citizens": Promote solar photovoltaic systems and solar thermal systems by recognizing up to 100 homeowners who demonstrate energy sustainability in their neighborhoods	II	758	$435,332	$4,000	$5.28
LIVE - 3	Residential Buildings	Residential PACE: Partner and aggressively promote Residential PACE Program to reach 25% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems in eight years	I	11,546	$5,945,212	$4,000	$0.35
LIVE - 4	Residential Buildings	On-Bill Finance/Repayment: Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	I	2,114	$532,178	$2,000	$0.95

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
LIVE - 5	Residential Buildings	Pool Pumps: Promote high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve minimum of 2000 units by offering a $50 rebate on top of the $200 SCE rebates	I	986	$705,344	$100,000	$101.42
LIVE - 6	Residential Buildings	Energy-Efficient Lighting: Purchase approx. 2,000 compact fluorescent lamps and LEDs for giveaways to demonstrate their value in homes and leverage ten times the number in household and business applications	III	279	$200,376	$6,000	$21.51
LIVE - 7	Residential Buildings	Peak Demand Reduction: Partner with SCE to provide and augment local promotion, through local media and the MirageScape newsletter, of the residential Summer Discount Program to cut peak demand in 10% of the housing stock	I	406	$291,820	$2,000	$4.93
LIVE - 8	Residential Buildings	Household Efficiency Audits: Partner with SCE and SCG to provide local promotion for the Home Energy Efficiency Survey to "self-audit" homes	II	1,251	$671,187	$2,500	$2.00
LIVE - 9	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by 5% to 78.8% by 2015 potentially through use of tiered rate structure	I	1,011	$100,000	$5,000	$4.95
LIVE - 10	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by an additional 10% to 88.8% by 2020 potentially through awareness programs, recognition, tiered rate structures, and other financial instruments	II	2,050	$200,000	$5,000	$2.44
LIVE - 11	**Transportation**	Development Planning: Promote pilot program to bring amenities and limited services into communities to shorten commutes and promote walking	II	12	$4,620	$5,000	$416.67
LIVE - 12	**Water**	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the residential sector by 15% community-wide by 2020	II	237	$319,709	$5,000	$21.10

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
LIVE - 13	**Water**	Gray water-Ready Ordinance: Require all new residential development to be constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs	I	6	$52	$5,000	$839.35
LIVE - 14	**Water**	Drought Tolerant Landscaping: Promote and augment CVWD/Rancho Mirage rebate partnership for drought tolerant planting, turf conversion and buy-back	III	215	$532,593	$25,000	$116.55
LIVE - 15	**Water**	Landscaper Certification: Require all licensed landscapers to be certified by the CVAG	I	117	$146,700	$5,000	$42.74

LIVE - GHG Sector Focus Area Linkage	Number of Measures	Annual Savings (Tonnes CO2e)	Annual Savings	Estimated Implementation Cost to City
Government Initiatives	**1**	**1,305**	**$882,224**	**$35,000**
Renewable Energy	**1**	**758**	**$435,332**	**$4,000**
Residential Buildings	**6**	**16,582**	**$8,346,117**	**$116,500**
Solid Waste	**2**	**3,061**	**$300,000**	**$10,000**
Transportation	**1**	**12**	**$4,620**	**$5,000**
Water	**4**	**574**	**$999,054**	**$40,000**
Subtotal	15	22,292	$10,967,347	$210,500

Where We Work (WORK)

- Workplace energy conservation and efficiency
- Workplace water conservation and efficiency
- Materials management and recycling
- Transportation and telecommuting

The City of Rancho Mirage is committed to creating healthy office and work environments as an important part of a sustainable lifestyle in the community. Given the percent of time that many residents spend at work, the focus on "Where We Work" will have multiple benefits.

For Rancho Mirage, continual business improvement is essential in creating jobs and supporting ongoing economic development. Programs that reduce the stress of commuting, for example, add to employee satisfaction, improve productivity, and cut transportation emissions. Studies

show that green building upgrades can cut operating costs, leading to decreased illnesses and absenteeism and to longer-term tenants.

The City can have an impact on the way supplies and raw materials are delivered within the City boundaries, and on how excess or waste materials are disposed of. The City has already implemented a pilot restaurant composting program and is exploring additional waste recycling and reduction programs for the future. This Plan presents the concept of a "Temperature Club," a novel measure to collaboratively raise temperatures slightly throughout the City, reducing air conditioning use and costs. Table 3 presents a broader set of options for implementation.

Table 3: Savings Measures for "Where We Work"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
WORK - 1	**Commercial Buildings**	Commercial Energy Audits: Work with Desert Cities Energy Partnership to promote energy audits for 1,000,000 square feet of commercial buildings and confirm replacement/upgrade schedule	II	730	$245,658	$12,000	$16.44
/ORK - 2	**Commercial Buildings**	Peak Demand Reduction: Collaborate with SCE and encourage 150 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	505	$183,000	$2,000	$3.96
WORK - 3	**Commercial Buildings**	Energy-Efficient, Commercial-Sector Lighting: Promote and leverage existing incentives for efficient lighting and educate and locally incent building owners to eliminate any remaining T-12 lamps in commercial buildings	I	704	$258,930	$5,000	$7.10
WORK - 4	**Commercial Buildings**	Integrated Lighting Systems: Promote SCE's Energy Management Solutions' energy-efficient lighting linked to building controls and occupancy sensors in minimum of 250,000 square feet of commercial space	III	205	$124,070	$15,000	$73.17
WORK - 5	**Commercial Buildings**	"The Temperature Club:" Promote community partnership through voluntary policies to adjust indoor temperatures upwards by a degree to engage collective savings	II	97	$48,450	$2,000	$20.62

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
WORK - 6	**Commercial Buildings**	SCE Business Incentives: Promote and leverage existing incentives for efficient lighting and energy efficiency upgrades for small businesses through SCE's Express Solutions Program, for specific industries such as Hospitality, Gov./Institutions, Office, Retail, Small Business, Water Wastewater through SCE's Energy Management Solutions program, and partner with SCE for large businesses through the Continuous Energy Improvement Program (savings from non-PACE-funded projects)	I	112	$49,140	$2,000	$17.86
WORK - 7	**Commercial Buildings**	Commercial PACE Program: Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	II	5,129	$2,174,689	$5,000	$0.97
WORK - 8	**Commercial Buildings**	Commercial On-Bill Financing/Repayment: Encourage On-Bill Financing/Repayment through SCE and SCG with green messaging and teamwork in the community	I	1,440	$591,535	$2,000	$1.39
WORK - 9	**Solid Waste**	Food Waste Composting at Restaurants: Increase restaurant composting program for food waste to reach all restaurants that serve more than 100 meals per day	II	16	$17,218	$5,000	$312.50
WORK - 10	**Transportation**	Car-Pooling and Mass Transit: Promote "Shared Vehicle at Work" programs to increase carpooling and mass transit by 20% with a "guaranteed-ride home"	II	114	$22,650	$2,000	$17.54
WORK - 11	**Transportation**	Telecommuting: Promote telecommuting and flex-time for local businesses to achieve and track 200 teleworkers in Rancho Mirage	II	147	$54,579	$2,000	$13.61
WORK - 12	**Water**	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the commercial sector by 20% community-wide by 2020	II	170	$273,750	$10,000	$58.82

WORK - GHG Sector Focus Area Linkage	Number of Measures	Annual Savings (Tonnes CO2e)	Annual Savings	Estimated Implementation Cost to City
Commercial Buildings	8	8,922	$3,675,472	$45,000
Solid Waste	1	16	$17,218	$5,000
Transportation	2	261	$77,229	$4,000
Water	1	170	$273,750	$10,000
Subtotal	12	9,369	$4,043,669	$64,000

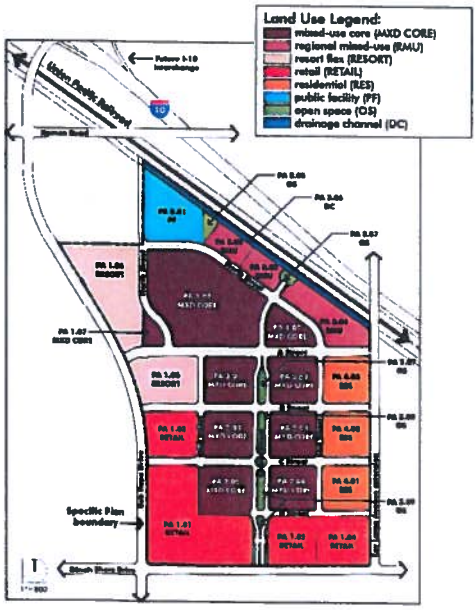
How We Build (BUILD)

- Green building materials
- Codes and standards
- Land use policy
- Lighting, HVAC systems, etc.
- Renewable energy system integration

Given the desert conditions, "How We Build" is of great importance to Rancho Mirage for its GHG reductions and the reduction of operational cost (energy cost) for its occupants and property owners.

California has the nation's leading building standards, Title 24. Yet there are further means for Rancho Mirage to make buildings healthier and more sustainable. The Green for Life Voluntary Green Building Program serves as a catalyst in the process of creating collaborative solutions to lower costs, promote healthy living, and enhance efficiencies. It prepares Valley builders and buyers for the benefits of green and highly energy efficient building.

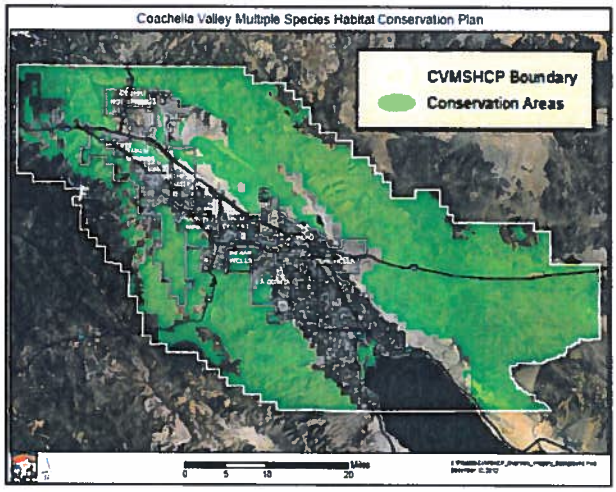
Section 19 Land Use Plan



Starting in 2010, new development in Rancho Mirage slowed, and it continues to remain below historical levels. Based on Riverside County projections, Rancho Mirage can anticipate growth of less than 1% annually over the next 10 years. The City can take the opportunity now to set new neighborhood development requirements and higher standards for buildings as part of the Green for Life Voluntary Green Building Program, adopted on July 19, 2012 in preparation for new statewide standards scheduled to take effect in 2014.

An important opportunity for sustainable living is embodied in the work already developed in the Section 19 Specific Plan. This development will "bring a different style of living, working, and shopping to the desert. Departing from the low-scale resort-oriented development, the Section 19 Specific Plan will introduce a high density mix of commercial, office, entertainment, hotel, and residential uses in the context of a master-planned Town Center."[13] The multimodal transit center, located within Section 19, may serve as a demonstration site for renewable energy.

Figure 9: Coachella Valley Multiple Species Conservation Area Map



Rancho Mirage is a participant in the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) which conserves open space and habitat, while effectively focusing development in less sensitive areas, thus limiting sprawl and reducing vehicle miles traveled (SB 375 requires vehicle miles traveled reductions). This visionary plan is another example that how and where we build can promote GHG emissions reduction.

The biggest opportunities for building energy efficiency lie with existing buildings. As with residential buildings, commercial and City buildings can benefit from efficiency upgrades and energy management. They may also be able to use renewable sources of electricity through solar installations, thereby reducing emissions from carbon-based sources.

The City will continue to collaborate with local utilities and county or state programs to help offset the costs of building upgrades, and to promote on-bill financing and repayment. It will also support the development of a regional PACE program for residential and commercial retrofits.

Naturally, measures for How We Build focus on essential efficiency and conservation actions that include dealing with the site itself, the building envelope as well as building systems, and landscaping.

[13] Section 19 Specific Plan. www.ranchomirageca.gov/content_files/pdf/Section19Specific.pdf

Table 4: Savings Measures for "How We Build"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
BUILD - 1	Commercial Buildings	Sustainable Parking Lots: Program to support existing shade standard through the promotion of parking lot coverings and semi permeable surfaces for new construction to achieve 20% of existing parking lots, and 80% of new parking lots	II	112	$58,415	$2,500	$22
BUILD - 2	Commercial Buildings	"Cool Roofs": Promote the installation of reflective roofing on commercial properties in the community with recognition for first ten early adopters	III	15	$8,714	$15,000	$1,000
BUILD - 3	Commercial Buildings	New and Efficient Construction: Promote the Savings by Design Program from SCE for new commercial buildings	II	93	$47,215	$1,000	$11
BUILD - 4	Government Initiatives	Plan Checking and Permitting: Provide priority services and consider reducing permit fees for green building projects and remodels that reduce resource consumption by 25% over building standards by 25%	II	154	$92,736	$1,000	$6
BUILD - 5	Government Initiatives	Green Building Program: Promote the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	548	$270,015	$2,500	$5
BUILD - 6	Government Initiatives	Green Building Support Services: Advance the Voluntary Green Building Program to mandatory green building requirement with technical support services	II	548	$270,015	$25,000	$46
BUILD - 7	Residential Buildings	Shade Trees: Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	II	35	$12,240	$56,000	$1,600
BUILD - 8	Residential Buildings	Affordable Housing: Promote the construction of energy-efficient affordable housing with private-sector partners	III	193	$96,900	$25,000	$130
BUILD - 9	Residential Buildings	Green Homes Tours and Recognition: Provide green builders and green home owners with recognition at Council; administer "Green Homes Tours" annually to showcase six projects each year	II	82	$40,502	$4,000	$49

BUILD - GHG Sector Focus Area Linkage	Number of Measures	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City
Commercial Buildings	3	220	$114,344	$18,500
Government Initiatives	3	1,250	$632,766	$28,500
Residential Buildings	3	310	$149,642	$85,000
Sub-Total	9	1,780	$896,752	$132,000

How We Get Around (MOBILITY)

- Alternative fuels: Electric Vehicles (EVs), hybrids
- Trip reduction, optimization
- Biking and walking
- Transit oriented development
- Transportation infrastructure
- Efficient driving habits through training and ordinances

In Rancho Mirage, emissions from transportation and "How We Get Around" represent the second largest source of emissions, behind electricity. "How We Get Around" shapes the community and has a major carbon footprint.

Thanks to state and regional manufacturing standards and technologies, tailpipe emissions from automobiles are largely invisible. But because of its location to the east of Los Angeles, prevailing winds drive pollution into to the Valley on a daily basis. Air quality and local and regional pollution remain a key issue in the Coachella Valley.

Transportation covers a wide swath of opportunity. It tackles fundamental issues such as the driving patterns associated with land use, the efficiency of vehicles, as well as the use of alternative fuels and alternative methods of getting around. The Sustainable Communities Strategy under SB 375, adopted by the Southern California Association of Governments (SCAG), provides support for alternative transportation solutions.

Parkway 1e11

CVAG is planning a regional transportation alternative called Parkway 1e11. Rancho Mirage is working with CVAG to support planning for the proposed Parkway 1e11 which would extend along the Whitewater River and connect all nine Coachella Valley Cities with a Valley-long trail system for walkers, bikes, and neighborhood electric vehicles (NEV). Such a system will support the City's desire to create opportunities for recreational activities to increase health benefits while reducing vehicle reliance and harmful emissions. The City will work with regional planners to carefully consider and map out local access points to the proposed trail system as well as potential charging station locations for plug-in electric and neighborhood electric vehicles.

The City of Rancho Mirage has already benefitted from the conversion policies of the transit fleets operating within the City. Now it considers additional measures.

Table 5: Savings Measures for "How We Get Around"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
MOBILITY - 1	Transportation	Electric Vehicles: Establish public/private partnership to increase the number of electric vehicles by 250, with local added values for consumers	III	1,194	$444,164	$40,000	$33.50
MOBILITY - 2	Transportation	Hybrid Vehicles: Establish public/private partnership to increase the number of hybrid vehicles in the community by 600, with local added values for consumers	III	1,974	$723,422	$100,000	$50.66
MOBILITY - 3	Transportation	"Golf Cars:" Promote existing program to achieve minimum of 250 new registered vehicles by 2020	III	597	$222,082	$2,000	$3.35
OBILITY - 4	Transportation	Electric Vehicle Charging Stations: Foster public/private partnerships to promote EV charging stations with public access	II	45	$16,716	$25,000	$555.56
MOBILITY - 5	Transportation	Eco-Conscious Driving: Promote eco-conscious driving behavior to increase fuel efficiency by 5 - 10% and minimize emissions and maintenance	II	94	$35,000	$5,000	$53.19
MOBILITY - 6	Transportation	Biking and Walking: Expand bikeways, trails, and walking paths connecting residential neighborhoods and commerce	II	24	$4,620	$200,000	$8,333.33
MOBILITY - 7	Transportation	Bike, Walking, NEV "Parkway:" Support Parkway 1e11 as a Valley amenity and means to alternative forms of transportation and to promote health in Rancho Mirage	I	25	$4,620	$5,000	$200.00
MOBILITY - 8	Transportation	White Bikes: Provide bicycles for daily trips using public/private partnership model	II	38	$6,485	$5,000	$131.58
MOBILITY - 9	Transportation	Van Pools: Partner and recognize all Rancho Mirage's major employers with over 50 employees for van pools	II	281	$104,468	$5,000	$17.79

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
MOBILITY - 10	Transportation	Senior Vehicle Tune-Ups: Introduce and implement "Senior Vehicle Diagnostic Program" to target and incentivize seniors to tune and maintain their vehicles on a regular basis	III	235	$93,240	$5,000	$21.28
MOBILITY - 11	Transportation	Car Sharing: Promote ZIP and/or other Car Share programs through preferential parking and promotion with signage to serve 5% of existing drivers who each reduce their driving by 25%	III	579	$215,356	$5,000	$8.64
MOBILITY - 12	Transportation	Anti-Idling: Pass ordinance that restricts idling of greater than 5 minutes for all commercial vehicles	II	100	$42,000	$2,000	$20.00

MOBILITY- GHG Sector Focus Area Linkage	Number of Measures	Annual Savings (Tonnes CO2e)	Annual Savings	Estimated Implementation Cost to City
Transportation	**12**	**5,186**	**$1,912,173**	**$399,000**
Subtotal	12	5,186	$1,912,173	$399,000

How We Govern (GOVERN)

- Energy management
- Policies, codes, and ordinances
- Land use policies
- Economic development
- Regional collaboration

Municipal Operations in the City of Rancho Mirage are responsible for less than 1% of total community emissions. Nevertheless, the City recognizes its disproportionately important role as a leader within the community. "How We Govern" plays a major role in this Plan, with City-led initiatives providing the greatest portion of the emissions reductions.

Cities can control the programs and policies they set for their own employees. City facilities can often be used as test beds for new technologies and pilot programs. Through leadership from the City Council, and guidance from the Sustainability Subcommittee and staff, Rancho Mirage intends to continue to set an example for the community and throughout the Coachella Valley.

The following policies are measures that are directly under the City's control to engage savings and to reduce emissions. For instance, the City can implement a "Solar Ready" ordinance that would require all new construction to be prepared for solar, including pre-wiring while roof joists and walls are exposed. These are presented in greater detail in Table 17.

In conjunction with this Sustainability Plan, an Energy Action Plan (ePlan) for the City of Rancho Mirage has been developed and is included in GFL Section II. The Energy Action Plan is a guide detailing energy efficiency steps that Rancho Mirage can take to reduce energy use and costs in municipal operations.

Potential Ordinances to Promote Sustainability

- ✓ **Expedite plan checking for green and efficient new construction/major remodels**
  - o **Residential, Commercial**
- ✓ **Reduce permit fees for green and energy-efficient new construction/major remodels**
  - o **Residential, Commercial**
- ✓ **Pass more restrictive water conservation ordinance**
  - o **Residential, Commercial**
- ✓ **Mandate landscaper certification**
- ✓ **Adopt food waste composting ordinance for restaurants**
- ✓ **Adopt a Mandatory Green Building Program**
- ✓ **Adopt an Anti-Idling ordinance for commercial vehicles**
- ✓ **Mandate that all municipal buildings are minimum LEED Silver or equivalent**
- ✓ **Implement a Solar Ready ordinance for new construction**
  - o **Residential, Commercial**

City leadership can be seen in many areas including land use policies that encourage or prescribe more efficient transportation requirements; land use planning that effectively limits sprawl and forms communities; purchasing and maintenance policies that promote energy efficiency; to regional collaboration; and financing programs. Rancho Mirage's participation in the Coachella Valley Multiple Species Habitat Conservation Plan is an example of a valley-wide effort that uses land use policies to reduce sprawl and enhance the quality of life.

The City of Rancho Mirage is exploring various options to promote green energy, including community choice aggregation to buy electrical power for residents on the open market, city-owned solar panels or community solar, and new green-energy incentives for residents. Any of these choices or a combination of all could have significant impact on community-wide emissions.

Through outreach and education, the City can involve the community and recognize the accomplishments of individuals, neighborhoods and groups. Table 6 presents actions or initiatives that City Council can implement to reduce GHG emissions.

Table 6: Savings Measures for "How We Govern"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
GOVERN - 1	**Government Initiatives**	Sustainability Committee: Continue to work with "Sustainability Subcommittee" for sustainability issues and management	I	2,700	$270,000	$15,000	$5.56
GOVERN - 2	**Government Initiatives**	Office of Energy Management: Create an Office of Environmental Management and Sustainability to promote all forms of cost effective energy efficiency measures within the community	II	2,776	$100,000	$15,000	$5.40
GOVERN - 3	**Government Initiatives**	Desert Cities Energy Partnership: Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	930	$665,124	$2,000	$2.15
GOVERN - 4	**Government Initiatives**	Municipal Facility Efficiency Upgrades...Payback Threshold Policy: Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	2	$750	$1,845	$922.50
GOVERN - 5	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete balance of municipal facility upgrades (after 4 year payback threshold compliance) to achieve 10 % reduction from 2004 baseline	I	15	$6,816	$190,401	$12,693.37
GOVERN - 6	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete 100% of remaining Energy Action Plan measures after 10 % savings has been realized (2015-2020)	III	78	$33,759	$962,199	$12,335.88
GOVERN - 7	**Government Initiatives**	Efficient and Green New Construction: Expand existing 15% over Title 24 policy so that 100% of new municipal buildings and major remodels adhere to Voluntary Green Building Program standards and are minimum LEED silver or equivalent	II	182	$58,290	$2,000	$10.99
GOVERN - 8	**Government Initiatives**	Utility Manager Software: Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	46	$18,974	$5,000	$108.70

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
GOVERN - 9	**Government Initiatives**	Benchmarking: Abide by Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	19	$7,708	$5,000	$263.16
GOVERN - 10	**Government Initiatives**	Retro Commissioning: Abide by the Retro-Commissioning (RCx) Policy and guidelines for qualifying municipal buildings	I	19	$7,708	$2,000	$105.26
GOVERN - 11	**Government Initiatives**	Group Purchasing: Promote and participate in group purchasing of energy efficiency goods and services with other CVAG cities/Citys	II	10	$40,000	$2,000	$200.00
GOVERN - 12	**Renewable Energy**	Public/Private Partnerships: Explore private-public partnerships for renewable energy installations and energy-efficiency upgrades on municipal facilities (performance-based contracts and power purchase agreements)	III	1,376	$505,890	$10,000	$7.27
OVERN - 13	**Renewable Energy**	Solar Ready Ordinance: Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	I	756	$436,603	$5,000	$6.61
GOVERN - 14	**Solid Waste**	Recyclable Take-Out Containers: Promote/mandate take-out alternative containers to eliminate use of polystyrene packaging	II	20		$5,000	$250.00
GOVERN - 15	**Transportation**	Electric Vehicle Charging Stations: Seek grant funding and private sector partnerships to install 10 EV charging stations on public and private property. (Initial locations to be selected by highest concentration EV areas)	II	3,821	$1,419,600	$5,000	$1.31
GOVERN - 16	**Transportation**	Transit Oriented Development: Promote transit oriented development (Section 19) to foster development in line with mass transit corridors	II	1,811	$181,100	$5,000	$2.76
GOVERN - 17	**Water**	Water Feature Efficiency: Update water feature ordinance to maintain amenity while increasing water and energy efficiency through time of use and seasonal timers	II	333	$291,485	$2,000	$6.01

GOVERN- GHG Sector Focus Area Linkage	Number of Measures	Annual Savings (Tonnes CO2e)	Annual Savings	Estimated Implementation Cost to City
Government Initiatives	11	6,777	$1,209,129	$1,202,445
Renewable Energy	2	2,132	$942,493	$15,000
Solid Waste	1	20	0	$5,000
Transportation	2	5,632	$1,600,700	$10,000
Water	1	333	$291,485	$2,000
Subtotal	17	14,894	$4,043,807	$1,234,445

Where We Visit and Play (RECREATE)

- Spa resorts, hotels, and restaurants
- Golf courses and parks
- Desert-appropriate landscaping
- Water efficiency
- Enhanced visitor transportation

The City of Rancho Mirage takes great pride in its quality of life. It's a great place to visit and a great place to live. City leaders are focused on more of the same, if not better! This Sustainability Plan highlights ways that Rancho Mirage can at once enhance the visitor experience and lifestyle while becoming ever more sustainable.

Rancho Mirage thrives on attracting visitors. The City recognizes the value of golf courses, resorts, hotels, clubs and special events to the City. These amenities will continue to be key elements in the City's sustainable future. The goal of this Plan is to promote efficiency, cut costs, and reduce emissions and thus positively impacting the visitor experience. A supporting objective will be to educate visitors to value a more sustainable desert experience.

Table 7: Savings Measures for "Where We Visit and Play"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
RECREATE - 1	Commercial Buildings	Comprehensive Pool Efficiency: Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating for 100 pools	II	49	$35,438	$2,000	$40.82

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
RECREATE - 2	**Commercial Buildings**	Net Zero Special Events: Continue to work with the hospitality sector and require special purpose events to be sustainable with net zero energy and waste requirements	II	6	$2,000	$2,000	$333.33
RECREATE - 3	**Commercial Buildings**	Green Conferences: Continue to work with hospitality sector to define and promote "green" conference venues, hotels, etc.	II	88	$20,000	$4,000	$45.45
RECREATE - 4	**Commercial Buildings**	Resort Management: Revise management contracts for resorts to include efficiency as a performance metric	III	10	$54,630	$2,000	$200.00
ECREATE - 5	**Government Initiatives**	Ball field Lighting Timers: Promote the installation of timers for all ball field or other recreational lighting at schools and city facilities	III	60	$22,076	$10,000	$166.67
RECREATE - 6	**Renewable Energy**	Ecotourism: Form public/private partnership to promote eco-tourism and tours of wind farms, solar arrays, and geothermal systems in the Valley	II	12	$125,000	$5,000	$416.67
RECREATE - 7	**Transportation**	Visitor Shuttles: Collaborate with local hotels and resorts to establish effective point-to-point transportation for visitors, e.g. shuttles to airport, hotels, business district	II	1,744	$24,873	$50,000	$28.67
RECREATE - 8	**Transportation**	Neighborhood Electric Vehicles: Commit to design and promote Neighborhood Electric Vehicle program to achieve minimum of 400 NEVs for Valley residents and visitors	II	955	$355,600	$1,000	$1.05
RECREATE - 9	**Water**	Irrigation System Controls: Promote the installation of irrigation control sensors at parks and golf courses	II	102	$127,140	$1,000	$9.80
CREATE - 10	**Water**	Drought-Tolerant Landscaping: Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	II	41	$14,901	$1,000	$24.39

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
RECREATE - 11	**Water**	Golf Course Water Management Recognition: Promote highly efficient irrigation sensors, water pumping and delivery for golf courses with Council recognition	II	162	$211,900	$5,000	$30.86

RECREATE- GHG Sector Focus Area Linkage	Number of Measures	Annual Savings (Tonnes CO2e)	Annual Savings	Estimated Implementation Cost to City
Commercial Buildings	**4**	**153**	**$112,068**	**$10,000**
Government Initiatives	**1**	**60**	**$22,076**	**$10,000**
Renewable Energy	**1**	**12**	**$125,000**	**$5,000**
Transportation	**2**	**2,699**	**$380,473**	**$51,000**
Water	**3**	**305**	**$353,941**	**$7,000**
Subtotal	11	3,229	$993,558	$83,000

How We Teach and Learn (LEARN)

- Student education
- Community centers and youth programs
- Workforce development
- Demonstration projects and community outreach

Rancho Mirage recognizes that today's students are tomorrow's consumers. How the community's youth are educated will have profound impacts on the sustainability of Rancho Mirage, the region, State and even the planet.

Rancho Mirage also recognizes its unique location at the center of solar, wind and geo-thermal potential. Rancho Mirage, and the Coachella Valley, has a strong foundation for energy efficiency and sustainable practices. The City will continue to support workforce development, including opportunities for students of all ages to be involved in sustainability programs.

Emissions reductions resulting from educational programs are inherently difficult to measure, but there is little doubt that the value of locally developed, community-wide efforts can be substantial, especially when coupled with incentive programs. Rancho Mirage values education and will continue to educate its residents of all ages about ways to "go green" for its multiple benefits.

Rancho Mirage will support the continuum of training, starting in elementary schools with California teaching standards, augmented in local high schools thanks to the programs sponsored by the Coachella Valley Economic Partnership (CVEP), and continuing at local

institutions of higher learning: College of the Desert; California State University, San Bernardino, Palm Desert Campus; and University of California, Riverside, Palm Desert Center.

Training also takes place in homes and businesses throughout the community, as residents become aware of new opportunities and often, new incentives. The City understands its role in raising awareness and understanding of the benefits of sustainability. The City's website will be used to further outreach to its residents and business owners and will be coupled with the efforts of the Green for Life website which has up-to-date information on green building and the further "greening" of the Southern California desert region.

The CVAG jurisdictions have affirmed an emphasis on educational efforts in four specific areas: high-tech training for alternative energy, medical training, fine arts including film, and logistics. How We Teach and Learn measures in the Sustainability Plan support and augment training for the alternative energy-training sector, and expand energy awareness in all areas of the community.

Table 8: Savings Measures for "How We Teach and Learn"

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO2e)
LEARN - 1	Cross-Cutting Initiatives	Save a Ton Campaign: Work with CVAG to develop and locally market the Save a Ton campaign, unlocking energy, dollar, and carbon savings in 30% of the housing stock	I	2,906	$1,764,308	$2,000	$1
LEARN - 2	Cross-Cutting Initiatives	Commercial Sector Green Business: Target and work with minimum of 100 businesses for Green Business Program	II	526	$186,136	$10,000	$19
LEARN - 3	Cross-Cutting Initiatives	Green Building Lectures and Continuing Education: Provide lectures, seminars and training on green building based on training materials emphasizing desert conditions and opportunities	II	177	$94,458	$5,000	$28
LEARN - 4	Cross-Cutting Initiatives	Community Energy Champions: Solicit nominations and promote 10 community Energy Champions each year to show value of efficiency and its energy, dollar, and carbon savings	I	44	$25,216	$2,000	$45
LEARN - 5	Cross-Cutting Initiatives	Internships: Provide student internships in city government each year to focus on updates to the GHG inventory and the sustainability plan and to promote energy efficiency in Rancho Mirage	I	4	-	$5,000	$1,250
LEARN - 6	Cross-Cutting Initiatives	Workforce Development: Promote workforce development in partnership with College of the Desert, UCR, and CSUSB to achieve 1000 "green careers" by 2020	II	4	-	$10,000	$2,500

LEARN- GHG Sector Focus Area Linkage	Number of Measures	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City
Cross-Cutting Initiatives	6	3,661	$2,070,118	$34,000
Sub-Total	6	3,661	$2,070,118	$34,000

V. Implementation

Timeline

This 2012 Sustainability Plan presents a course of action for the next eight years. Through a strong set of least-cost Phase I activities, the City can reduce its carbon footprint by 26,850 tonnes (over 50%) annually by leveraging a variety of resources and partnerships. Phase I activities will be completed in calendar years 2013 and 2014. Phase II activities are slated to achieve 26,940 tonnes (another 25%) and will be implemented in the years 2015, 2016, and 2017. Phase III activities will take place in 2018, 2019, and 2020. Naturally measures may shift in implementation priority pending strategic or economic opportunities.

Tables 9 and 10 present a potential scenario for eight-year implementation, leveraging large community benefits in the process. Table 10 represents implementation by sphere while Table 11 represents implementation by phase and includes information such as: implementation cost, savings in CO_2e and in annual savings.

Table 9: Savings Measures by the Spheres of Daily Life

Sphere	Annual Savings (Tonnes CO_2e)	Estimated Implementation Cost to City	Annual Savings
Live	22,292	$ 210,500	$ 10,967,347
Work	9,369	$ 64,000	$ 4,043,669
Build	1,780	$ 132,000	$ 896,752
Mobility	5,186	$ 399,000	$ 1,912,173
Govern	14,894	$ 1,234,445	$ 4,043,807
Recreate	3,229	$ 83,000	$ 993,558
Learn	3,661	$ 34,000	$ 2,070,118
Totals:	60,411	$ 2,156,945	$ 24,927,424

Table 10: Summary of Measures by Phase

Phase	Number of Measures	Emissions Reduced (Tonnes CO_2e)	Estimated Implementation Cost to City	Community Savings
I	24	26,961	$ 376,746	$ 12,281,753
II	44	26,441	$ 558,000	$ 9,368,399
III	14	7,010	$ 1,222,199	$ 3,277,272
Totals:	82	60,411	$ 2,156,945	$ 24,927,424

Table 11 shows that the biggest emissions reductions will come from residential buildings and transportation, followed by government initiatives and commercial buildings.

Table 11: Summary of Measures by Greenhouse Gas Sector

GHG Sector Linkage	Number of Measures	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City
Residential Buildings	9	16,892	$8,495,759	$201,500
Transportation	19	13,790	$3,975,195	$469,000
Government Initiatives	16	9,392	$2,746,195	$1,275,945
Commercial Buildings	15	9,295	$3,901,884	$73,500
Cross-Cutting Initiatives	6	3,661	$2,070,118	$34,000
Solid Waste	4	3,097	$317,218	$20,000
Renewable Energy	4	2,902	$1,502,825	$24,000
Water	9	1,382	$1,918,230	$59,000
GRAND TOTAL OF EMISSION MEASURES	82	60,411	$24,927,424	$2,156,945

Phase I Activities

The following table presents recommended GHG reduction measures for Phase I implementation. Twenty-tfour (24) measures are presented as a menu for Phase I. The total savings for all Phase I measures is 26,961 tonnes, approximately 45% of the target reduction. Its total cost to the City is estimated to be $376,746 over two years. These measures primarily rely on or are enhanced by City policies, public education and outreach, utility programs, regional financing, and public/private partnerships to achieve the goals. Another opportunity is the reinvestment of the annual savings from energy efficiency upgrades to be used for additional measures to increase future emissions reductions.

Phase I savings measures in Table 12 will leverage community benefit, creating annual community bill savings of an estimated $12.2 million, and creating approximately 122 jobs in the community expressed as annual full-time equivalent positions.

Table 12: Phase I Measures

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
WORK - 2	**Commercial Buildings**	Peak Demand Reduction: Collaborate with SCE and encourage 150 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	505	$183,000	$2,000	$3.96
WORK - 3	**Commercial Buildings**	Energy-Efficient, Commercial-Sector Lighting: Promote and leverage existing incentives for efficient lighting and educate and locally incent building owners to eliminate any remaining T-12 lamps in commercial buildings	I	704	$258,930	$5,000	$7.10
WORK - 6	**Commercial Buildings**	SCE Business Incentives: Promote and leverage existing incentives for efficient lighting and energy efficiency upgrades for small businesses through SCE's Express Solutions Program, for specific industries such as Hospitality, Gov./Institutions, Office, Retail, Small Business, Water Wastewater through SCE's Energy Management Solutions program, and partner with SCE for large businesses through the Continuous Energy Improvement Program (savings from non-PACE-funded projects)	I	112	$49,140	$2,000	$17.86
WORK - 8	**Commercial Buildings**	Commercial On-Bill Financing/Repayment: Encourage On-Bill Financing/Repayment through SCE and SCG with green messaging and teamwork in the community	I	1,440	$591,535	$2,000	$1.39
LEARN - 1	**Cross-Cutting Initiatives**	Save a Ton Campaign: Work with CVAG to develop and locally market the Save a Ton campaign, unlocking energy, dollar, and carbon savings in 30% of the housing stock	I	2,906	$1,764,308	$2,000	$0.69

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
LEARN - 4	**Cross-Cutting Initiatives**	Community Energy Champions: Solicit nominations and promote 10 community Energy Champions each year to show value of efficiency and its energy, dollar, and carbon savings	I	44	$25,216	$2,000	$45.45
LEARN - 5	**Cross-Cutting Initiatives**	Internships: Provide student internships in city government each year to focus on updates to the GHG inventory and the sustainability plan and to promote energy efficiency in Rancho Mirage	I	4		$5,000	$1,250.00
BUILD - 5	**Government Initiatives**	Green Building Program: Promote the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	548	$270,015	$2,500	$4.56
GOVERN - 1	**Government Initiatives**	Sustainability Committee: Continue to work with "Sustainability Subcommittee" for sustainability issues and management	I	2,700	$270,000	$15,000	$5.56
GOVERN - 3	**Government Initiatives**	Desert Cities Energy Partnership: Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	930	$665,124	$2,000	$2.15
GOVERN - 4	**Government Initiatives**	Municipal Facility Efficiency Upgrades...Payback Threshold Policy: Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	2	$750	$1,845	$922.50
GOVERN - 5	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete balance of municipal facility upgrades (after 4 year payback threshold compliance) to achieve 10 % reduction from 2004 baseline	I	15	$6,816	$190,401	$12,693.37
GOVERN - 8	**Government Initiatives**	Utility Manager Software: Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	46	$18,974	$5,000	$108.70

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
GOVERN - 9	**Government Initiatives**	Benchmarking: Abide by Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	19	$7,708	$5,000	$263.16
GOVERN - 10	**Government Initiatives**	Retro Commissioning: Abide by the Retro-Commissioning (RCx) Policy and guidelines for qualifying municipal buildings	I	19	$7,708	$2,000	$105.26
GOVERN - 13	**Renewable Energy**	Solar Ready Ordinance: Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	I	756	$436,603	$5,000	$6.61
LIVE - 3	Residential Buildings	Residential PACE: Partner and aggressively promote Residential PACE Program to reach 25% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems in eight years	I	11,546	$5,945,212	$4,000	$0.35
LIVE - 4	Residential Buildings	On-Bill Finance/Repayment: Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	I	2,114	$532,178	$2,000	$0.95
LIVE - 5	Residential Buildings	Pool Pumps: Promote high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve minimum of 2000 units by offering a $50 rebate on top of the $200 SCE rebates	I	986	$705,344	$100,000	$101.42
LIVE - 7	Residential Buildings	Peak Demand Reduction: Partner with SCE to provide and augment local promotion, through local media and the MirageScape newsletter, of the residential Summer Discount Program to cut peak demand in 10% of the housing stock	I	406	$291,820	$2,000	$4.93
LIVE - 9	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by 5% to 78.8% by 2015 potentially through use of tiered rate structure	I	1,011	$100,000	$5,000	$4.95

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
MOBILITY - 7	Transportation	Bike, Walking, NEV "Parkway:" Support Parkway 1e11 as a Valley amenity and means to alternative forms of transportation and to promote health in Rancho Mirage	I	25	$4,620	$5,000	$200.00
LIVE - 13	Water	Gray water-Ready Ordinance: Require all new residential development to be constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs	I	6	$52	$5,000	$839.35
LIVE - 15	Water	Landscaper Certification: Require all licensed landscapers to be certified by the CVAG	I	117	$146,700	$5,000	$42.74

GHG Sector Focus Area Linkage	Number of Measure	Annual Savings (Tonnes CO2e)	Annual Savings	Estimated Implementation Cost to City
Commercial Buildings	**4**	**2,761**	**$1,082,605**	**$11,000**
Cross-Cutting Initiatives	**3**	**2,954**	**$1,789,524**	**$9,000**
Government Initiatives	**8**	**4,279**	**$1,247,095**	**$223,746**
Renewable Energy	**1**	**756**	**$436,603**	**$5,000**
Residential Buildings	**4**	**15,052**	**$7,474,554**	**$108,000**
Solid Waste	**1**	**1,011**	**$100,000**	**$5,000**
Transportation	**1**	**25**	**$4,620**	**$5,000**
Water	**2**	**123**	**$146,752**	**$10,000**
Subtotal of Phase I Measures	24	26,961	$12,281,753	$376,746

Phase II and III Activities

The next two phases of savings will expand the base of measures implemented in Phase I. PACE financing is seen as key to major building upgrades. As real estate development picks up, an updated green building program will also steer infrastructure upgrades towards sustainability. Advances in mobility and auto efficiency will drive down transportation-related emissions.

These measures and phases will be refined in years to come based on measuring and tracking the progress with emissions reductions. Ultimately, Phase II and III measures will be based on economic conditions, additional regulation, advances in technology and financing. The City of Rancho Mirage will also track advances in the California Executive Order that calls for an emissions reduction of 80% from 1990 levels by 2050.

Table 13: Phase II Measures

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
WORK - 1	**Commercial Buildings**	Commercial Energy Audits: Work with Desert Cities Energy Partnership to promote energy audits for 1,000,000 square feet of commercial buildings and confirm replacement/upgrade schedule	II	730	$245,658	$12,000	$16.44
WORK - 5	**Commercial Buildings**	"The Temperature Club:" Promote community partnership through voluntary policies to adjust indoor temperatures upwards by a degree to engage collective savings	II	97	$48,450	$2,000	$20.62
WORK - 7	**Commercial Buildings**	Commercial PACE Program: Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts— with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	II	5,129	$2,174,689	$5,000	$0.97
BUILD - 1	**Commercial Buildings**	Sustainable Parking Lots: Program to support existing shade standard through the promotion of parking lot coverings and semi permeable surfaces for new construction to achieve 20% of existing parking lots, and 80% of new parking lots	II	112	$58,415	$2,500	$22.32
BUILD - 3	**Commercial Buildings**	New and Efficient Construction: Promote the Savings by Design Program from SCE for new commercial buildings	II	93	$47,215	$1,000	$10.75
RECREATE - 1	**Commercial Buildings**	Comprehensive Pool Efficiency: Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating for 100 pools	II	49	$35,438	$2,000	$40.82
RECREATE - 2	**Commercial Buildings**	Net Zero Special Events: Continue to work with the hospitality sector and require special purpose events to be sustainable with net zero energy and waste requirements	II	6	$2,000	$2,000	$333.33

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
RECREATE - 3	**Commercial Buildings**	Green Conferences: Continue to work with hospitality sector to define and promote "green" conference venues, hotels, etc.	II	88	$20,000	$4,000	$45.45
LEARN - 2	**Cross-Cutting Initiatives**	Commercial Sector Green Business: Target and work with minimum of 100 businesses for Green Business Program	II	526	$186,136	$10,000	$19.01
LEARN - 3	**Cross-Cutting Initiatives**	Green Building Lectures and Continuing Education: Provide lectures, seminars and training on green building based on training materials emphasizing desert conditions and opportunities	II	177	$94,458	$5,000	$28.25
LEARN - 6	**Cross-Cutting Initiatives**	Workforce Development: Promote workforce development in partnership with College of the Desert, UCR, and CSUSB to achieve 1000 "green careers" by 2020	II	4		$10,000	$2,500.00
LIVE - 1	**Government Initiatives**	Plan Checking and Permitting: Provide priority services and consider reducing permit fees for homes that exceed Title 24 building standards by 25% through energy-efficiency measures and renewable energy installations	II	1,305	$882,224	$35,000	$26.82
BUILD - 4	**Government Initiatives**	Plan Checking and Permitting: Provide priority services and consider reducing permit fees for green building projects and remodels that reduce resource consumption by 25% over building standards by 25%	II	154	$92,736	$1,000	$6.49
BUILD - 6	**Government Initiatives**	Green Building Support Services: Advance the Voluntary Green Building Program to mandatory green building requirement with technical support services	II	548	$270,015	$25,000	$45.62

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
GOVERN - 2	**Government Initiatives**	Office of Energy Management: Create an Office of Environmental Management and Sustainability to promote all forms of cost effective energy efficiency measures within the community	II	2,776	$100,000	$15,000	$5.40
GOVERN - 7	**Government Initiatives**	Efficient and Green New Construction: Expand existing 15% over Title 24 policy so that 100% of new municipal buildings and major remodels adhere to Voluntary Green Building Program standards and are minimum LEED silver or equivalent	II	182	$58,290	$2,000	$10.99
GOVERN - 11	**Government Initiatives**	Group Purchasing: Promote and participate in group purchasing of energy efficiency goods and services with other CVAG cities/tribes	II	10	$40,000	$2,000	$200.00
LIVE - 2	**Renewable Energy**	Solar "Model Citizens": Promote solar photovoltaic systems and solar thermal systems by recognizing up to 100 homeowners who demonstrate energy sustainability in their neighborhoods	II	758	$435,332	$4,000	$5.28
RECREATE - 6	**Renewable Energy**	Ecotourism: Form public/private partnership to promote eco-tourism and tours of wind farms, solar arrays, and geothermal systems in the Valley	II	12	$125,000	$5,000	$416.67
LIVE - 8	**Residential Buildings**	Household Efficiency Audits: Partner with SCE and SCG to provide local promotion for the Home Energy Efficiency Survey to "self-audit" homes	II	1,251	$671,187	$2,500	$2.00
BUILD - 7	**Residential Buildings**	Shade Trees: Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	II	35	$12,240	$56,000	$1,600.00
BUILD - 9	**Residential Buildings**	Green Homes Tours and Recognition: Provide green builders and green home owners with recognition at Council; administer "Green Homes Tours" annually to showcase six projects each year	II	82	$40,502	$4,000	$48.78

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
LIVE - 10	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by an additional 10% to 88.8% by 2020 potentially through awareness programs, recognition, tiered rate structures, and other financial instruments	II	2,050	$200,000	$5,000	$2.44
WORK - 9	**Solid Waste**	Food Waste Composting at Restaurants: Increase restaurant composting program for food waste to reach all restaurants that serve more than 100 meals per day	II	16	$17,218	$5,000	$312.50
GOVERN - 14	**Solid Waste**	Recyclable Take-Out Containers: Promote/mandate take-out alternative containers to eliminate use of polystyrene packaging	II	20		$5,000	$250.00
LIVE - 11	**Transportation**	Development Planning: Promote pilot program to bring amenities and limited services into communities to shorten commutes and promote walking	II	12	$4,620	$5,000	$416.67
WORK - 10	**Transportation**	Car-Pooling and Mass Transit: Promote "Shared Vehicle at Work" programs to increase carpooling and mass transit by 20% with a "guaranteed-ride home"	II	114	$22,650	$2,000	$17.54
WORK - 11	**Transportation**	Telecommuting: Promote telecommuting and flex-time for local businesses to achieve and track 200 teleworkers in Rancho Mirage	II	147	$54,579	$2,000	$13.61
MOBILITY - 4	**Transportation**	Electric Vehicle Charging Stations: Foster public/private partnerships to promote EV charging stations with public access	II	45	$16,716	$25,000	$555.56
MOBILITY - 5	**Transportation**	Eco-Conscious Driving: Promote eco-conscious driving behavior to increase fuel efficiency by 5 - 10% and minimize emissions and maintenance	II	94	$35,000	$5,000	$53.19
MOBILITY - 6	**Transportation**	Biking and Walking: Expand bikeways, trails, and walking paths connecting residential neighborhoods and commerce	II	24	$4,620	$200,000	$8,333.33
MOBILITY - 8	**Transportation**	White Bikes: Provide bicycles for daily trips using public/private partnership model	II	38	$6,485	$5,000	$131.58

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
MOBILITY - 9	Transportation	Van Pools: Partner and recognize all Rancho Mirage's major employers with over 50 employees for van pools	II	281	$104,468	$5,000	$17.79
MOBILITY - 12	Transportation	Anti-Idling: Pass ordinance that restricts idling of greater than 5 minutes for all commercial vehicles	II	100	$42,000	$2,000	$20.00
GOVERN - 15	Transportation	Electric Vehicle Charging Stations: Seek grant funding and private sector partnerships to install 10 EV charging stations on public and private property. (Initial locations to be selected by highest concentration EV areas)	II	3,821	$1,419,600	$5,000	$1.31
GOVERN - 16	Transportation	Transit Oriented Development: Promote transit oriented development (Section 19) to foster development in line with mass transit corridors	II	1,811	$181,100	$5,000	$2.76
RECREATE - 7	Transportation	Visitor Shuttles: Collaborate with local hotels and resorts to establish effective point-to-point transportation for visitors, e.g. shuttles to airport, hotels, business district	II	1,744	$24,873	$50,000	$28.67
RECREATE - 8	Transportation	Neighborhood Electric Vehicles: Commit to design and promote Neighborhood Electric Vehicle program to achieve minimum of 400 NEVs for Valley residents and visitors	II	955	$355,600	$1,000	$1.05
LIVE - 12	Water	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the residential sector by 15% community-wide by 2020	II	237	$319,709	$5,000	$21.10
WORK - 12	Water	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the commercial sector by 20% community-wide by 2020	II	170	$273,750	$10,000	$58.82

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
GOVERN - 17	**Water**	Water Feature Efficiency: Update water feature ordinance to maintain amenity while increasing water and energy efficiency through time of use and seasonal timers	II	333	$291,485	$2,000	$6.01
RECREATE - 9	**Water**	Irrigation System Controls: Promote the installation of irrigation control sensors at parks and golf courses	II	102	$127,140	$1,000	$9.80
RECREATE - 10	**Water**	Drought-Tolerant Landscaping: Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	II	41	$14,901	$1,000	$24.39
RECREATE - 11	**Water**	Golf Course Water Management Recognition: Promote highly efficient irrigation sensors, water pumping and delivery for golf courses with Council recognition	II	162	$211,900	$5,000	$30.86

GHG Sector Focus Area Linkage	Number of Measure	Annual Savings (Tonnes CO2e)	Annual Savings	Estimated Implementation Cost to City
Commercial Buildings	**8**	**6,304**	**$2,631,865**	**$30,500**
Cross-Cutting Initiatives	**3**	**707**	**$280,594**	**$25,000**
Government Initiatives	**6**	**4,975**	**$1,443,265**	**$80,000**
Renewable Energy	**2**	**770**	**$560,332**	**$9,000**
Residential Buildings	**3**	**1,368**	**$723,929**	**$62,500**
Solid Waste	**3**	**2,086**	**$217,218**	**$15,000**
Transportation	**13**	**9,186**	**$2,272,311**	**$312,000**
Water	**6**	**1,045**	**$1,238,885**	**$24,000**
Subtotal of Phase II Measures	44	26,441	$9,368,399	$558,000

Table 14: Phase III Measures

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
WORK - 4	**Commercial Buildings**	Integrated Lighting Systems: Promote SCE's Energy Management Solutions' energy-efficient lighting linked to building controls and occupancy sensors in minimum of 250,000 square feet of commercial space	III	205	$124,070	$15,000	$73.17
BUILD - 2	**Commercial Buildings**	"Cool Roofs": Promote the installation of reflective roofing on commercial properties in the community with recognition for first ten early adopters	III	15	$8,714	$15,000	$1,000.00
RECREATE - 4	**Commercial Buildings**	Resort Management: Revise management contracts for resorts to include efficiency as a performance metric	III	10	$54,630	$2,000	$200.00
GOVERN - 6	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete 100% of remaining Energy Action Plan measures after 10 % savings has been realized (2015-2020)	III	78	$33,759	$962,199	$12,335.88
RECREATE - 5	**Government Initiatives**	Ball field Lighting Timers: Promote the installation of timers for all ball field or other recreational lighting at schools and city facilities	III	60	$22,076	$10,000	$166.67
GOVERN - 12	**Renewable Energy**	Public/Private Partnerships: Explore private-public partnerships for renewable energy installations and energy-efficiency upgrades on municipal facilities (performance-based contracts and power purchase agreements)	III	1,376	$505,890	$10,000	$7.27
LIVE - 6	**Residential Buildings**	Energy-Efficient Lighting: Purchase approx. 2,000 compact fluorescent lamps and LEDs for giveaways to demonstrate their value in homes and leverage ten times the number in household and business applications	III	279	$200,376	$6,000	$21.51
BUILD - 8	**Residential Buildings**	Affordable Housing: Promote the construction of energy-efficient affordable housing with private-sector partners	III	193	$96,900	$25,000	$129.53

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)
MOBILITY - 1	Transportation	Electric Vehicles: Establish public/private partnership to increase the number of electric vehicles by 250, with local added values for consumers	III	1,194	$444,164	$40,000	$33.50
MOBILITY - 2	Transportation	Hybrid Vehicles: Establish public/private partnership to increase the number of hybrid vehicles in the community by 600, with local added values for consumers	III	1,974	$723,422	$100,000	$50.66
MOBILITY - 3	Transportation	"Golf Cars:" Promote existing program to achieve minimum of 250 new registered vehicles by 2020	III	597	$222,082	$2,000	$3.35
MOBILITY - 10	Transportation	Senior Vehicle Tune-Ups: Introduce and implement "Senior Vehicle Diagnostic Program" to target and incentivize seniors to tune and maintain their vehicles on a regular basis	III	235	$93,240	$5,000	$21.28
MOBILITY - 11	Transportation	Car Sharing: Promote ZIP and/or other Car Share programs through preferential parking and promotion with signage to serve 5% of existing drivers who each reduce their driving by 25%	III	579	$215,356	$5,000	$8.64
LIVE - 14	Water	Drought Tolerant Landscaping: Promote and augment CVWD/Rancho Mirage rebate partnership for drought tolerant planting, turf conversion and buy-back	III	215	$532,593	$25,000	$116.55

GHG Sector Focus Area Linkage	Number of Measure	Annual Savings (Tonnes CO2e)	Annual Savings	Estimated Implementation Cost to City
Commercial Buildings	**3**	**230**	**$187,414**	**$32,000**
Government Initiatives	**2**	**138**	**$55,835**	**$972,199**
Renewable Energy	**1**	**1,376**	**$505,890**	**$10,000**
Residential Buildings	**2**	**472**	**$297,276**	**$31,000**
Transportation	**5**	**4,579**	**$1,698,264**	**$152,000**
Water	**1**	**215**	**$532,593**	**$25,000**
Subtotal of Phase III Measures	**14**	**7,010**	**$3,277,272**	**$1,222,199**

VI. Tracking Results and Measuring Progress

The practice of reducing greenhouse gas emissions is new to most of California's local governments. While many of the policies, programs, and initiatives are familiar—they address electric efficiency; water use; transportation; and power generation through renewables. These actions are presented in this Sustainability Plan in a new way and with a new focus. Many assumptions are made, making the practice of measuring actual results all the more important to direct mid-course programmatic changes as need be.

Update Policy Guidelines

Monitoring, updating and reviewing the City's Sustainability Action Plan will quantify changes to the various sources of emissions and attribute savings figures to the programs and policies being implemented. This process will evaluate and track progress towards the City's goals.

The City's progress toward meeting its Sustainability Action Goals will be measured and reported on every two years by City staff. The Plan itself will be updated every two years and will contain recommendations made for mid-course corrections. The Plan will measure programs and projects that are applicable for the current Phase of the project. The City will use the updated Plan to prioritize policies and programs for each phase of the project. Priority for the phase shall be established on a weighted system that considers:

- Energy savings potential
- Financial savings potential
- Emissions reduction potential
- Job creation potential
- Cost to the City and availability of funds and additional incentives

In conjunction with the Greenhouse Gas Inventory, the Plan will be used to reduce emissions and evaluate the effectiveness of emissions reduction measures. The City Manager will designate an internal staff member or external consultant as Sustainability Action Plan Update Coordinator to ensure updates take place as scheduled. The Coordinator will be responsible for coordinating with and obtaining data from utilities, City departments, and other entities as necessary; preparing the quarterly Plan report; and transmitting results of the updates to the City Manager and the City Council.

At the beginning of each odd year, starting in 2013, the assigned staff will gather Plan activity data for municipal operations and the community for the two previous calendar years. Upon receipt of all necessary data, assigned staff shall calculate the City's progress in each of the different Plan spheres or focus areas. Findings will be documented in a report to the City Manager and subsequently to the City Council. Should the City receive new direction in how to track emissions or energy savings the Coordinator will review and re-evaluate the report to reflect these new requirements.

The potential for interns to assist in this process is being evaluated by CVAG. Tracking metrics for both municipal operations and community-wide include resource savings, economic savings, job creation, and carbon reductions:

Tracking Metric	Savings
Resource Savings	Kilowatt-hours Therms of Natural Gas Gasoline and other transportation fuel Water
Economic Savings	Electricity Bill Natural Gas Bill Water Bill Other resources
Greenhouse Gas Reductions	Source of emissions Tonnes of emissions Cost per tonne of avoided emissions Percentage of reduction goal achieved

Finally, the City of Rancho Mirage will make the Sustainability Plan easily accessible to its residents and stakeholders. The City will provide mechanisms for comments from citizens and staff using on-line survey tools and hard copy input sheets. Every two years, the City will also plan and provide a yearly community forum for interested stakeholders to keep them apprised of the work the City is doing and the progress that is being made and to solicit updated input for prioritization of actions.

Table 15: Savings Measures Analysis by Cost-Effectiveness

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
LIVE - 3	Residential Buildings	Residential PACE: Partner and aggressively promote Residential PACE Program to reach 25% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems in eight years	I	11,546	$5,945,212	$4,000	$0.35	25% of housing stock (3,560 homes), 40% kWh savings (28,195,200 kWh), 30% therms savings (629,052 therms) through energy upgrades; 100 homes with 10kw solar PV (200,750 kWh savings), 50 homes with solar DHW (renewable energy system) (saving 11,616 kWh and 5;392 therms/yr.)
LEARN - 1	Cross-Cutting Initiatives	Save a Ton Campaign: Work with CVAG to develop and locally market the Save a Ton campaign, unlocking energy, dollar, and carbon savings in 30% of the housing stock	I	2,906	$1,764,308	$2,000	$0.69	4,000 homes, 10% kWh savings (7,920,000 kWh), $0.207/kWh... Natural Gas with 5% savings (117,800 therms), $1.06/therm
LIVE - 4	Residential Buildings	On-Bill Finance/Repayment: Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	I	2,114	$532,178	$2,000	$0.95	15% of housing stock (2136 homes), 40% kWh savings, 30% therms savings
WORK - 7	Commercial Buildings	Commercial PACE Program: Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	II	5,129	$2,174,689	$5,000	$0.97	Efficiency upgrades (2,500,000 sq. ft. comm. space, 30% reduction electricity; 5% reduction natural gas) savings of 11,685,000 kWh/yr. and 43,750 therms /yr.; 2,500 kW PV producing 5,000,000 kWh/yr.; 90 businesses with solar hot water saving 58,081 kWh and 11,983 therms/yr. $24,214 (renewable energy system)

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
RECREATE - 8	Transportation	Neighborhood Electric Vehicles: Commit to design and promote Neighborhood Electric Vehicle program to achieve minimum of 400 NEVs for Valley residents and visitors	II	955	$355,600	$1,000	$1.05	400 NEVs assuming 5000 miles each annually, saving 254 gallons gasoline per vehicle resulting in 101,600 saved annually ($3.50/ gal. of gas)
GOVERN - 15	Transportation	Electric Vehicle Charging Stations: Seek grant funding and private sector partnerships to install 10 EV charging stations on public and private property. (Initial locations to be selected by highest concentration EV areas)	II	3,821	$1,419,600	$5,000	$1.31	800 EV car conversions for a savings of 507 gallons per vehicle/yr. 10,000 VMT/yr. ($3.50/ gal. of gas)
WORK - 8	**Commercial Buildings**	Commercial On-Bill Financing/Repayment: Encourage On-Bill Financing/Repayment through SCE and SCG with green messaging and teamwork in the community	I	1,440	$591,535	$2,000	$1.39	Efficiency upgrades (1,000,000 sq. ft. commercial space...30% reduction in elec. 5% reduction in natural gas) savings 4,680,000 kWh/y and 17,500 therms Nat Gas/yr.
LIVE - 8	Residential Buildings	Household Efficiency Audits: Partner with SCE and SCG to provide local promotion for the Home Energy Efficiency Survey to "self-audit" homes	II	1,251	$671,187	$2,500	$2.00	Assume 10% of homes (1,424) and a 10% reduction (1,980 kWh and 58 therms per home) resulting in 1,921,000 kWh and 82,592 therms saved annually
GOVERN - 3	**Government Initiatives**	Desert Cities Energy Partnership: Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	930	$665,124	$2,000	$2.15	DCEP...Data from Energy Leader Partnership annualized data from 2004-2011 ...Municipal 15,978 kWh/yr., Community 3,213,160 kWh/yr. Total 3,229,138 kWh

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
LIVE - 10	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by an additional 10% to 88.8% by 2020 potentially through awareness programs, recognition, tiered rate structures, and other financial instruments	II	2,050	$200,000	$5,000	$2.44	2010 diversion rate of 74.4% and characterization study (2008) from Cal-Recycle with consultant calculations then entered into the CACP software. consultant assumption on savings dollars
GOVERN - 16	**Transportation**	Transit Oriented Development: Promote transit oriented development (Section 19) to foster development in line with mass transit corridors	II	1,811	$181,100	$5,000	$2.76	Reduced community-wide VMT by 2% (51,714 Gallons x $3.50/gal. of gas)
MOBILITY - 3	**Transportation**	"Golf Cars:" Promote existing program to achieve minimum of 250 new registered vehicles by 2020	III	597	$222,082	$2,000	$3.35	250 new electric cars, 19.7 mpg vehicle replaced, 5,000 average annual miles per vehicle, $0.207/kWh saving 63,452 gallons of gas, ($3.50/ gal. of gas)
WORK - 2	**Commercial Buildings**	Peak Demand Reduction: Collaborate with SCE and encourage 150 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	505	$183,000	$2,000	$3.96	150 business participating, 8,000 kWh/yr. reduction 200 therms/yr. reduction.
BUILD - 5	**Government Initiatives**	Green Building Program: Promote the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	548	$270,015	$2,500	$4.56	100 new or "gut-rehab" homes at 3,000 square feet average...assume 25% savings off of the typical new construction annual energy usage per sq. ft....resulting in 1,170,000 kWh and 26,250 therms saved annually

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
LIVE - 7	Residential Buildings	Peak Demand Reduction: Partner with SCE to provide and augment local promotion, through local media and the MirageScape newsletter, of the residential Summer Discount Program to cut peak demand in 10% of the housing stock	I	406	$291,820	$2,000	$4.93	Assume 10% of homes (1,424) save 5% household electricity (990 kWh per home) resulting in 1,409,760 kWh saved annually
LIVE - 9	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by 5% to 78.8% by 2015 potentially through use of tiered rate structure	I	1,011	$100,000	$5,000	$4.95	2010 diversion rate of 74.4% and characterization study (2008) from Cal-Recycle with consultant calculations then entered into the CACP software. consultant assumption on savings dollars
LIVE - 2	**Renewable Energy**	Solar "Model Citizens": Promote solar photovoltaic systems and solar thermal systems by recognizing up to 100 homeowners who demonstrate energy sustainability in their neighborhoods	II	758	$435,332	$4,000	$5.28	100 homes with 10 kW solar PV (5.5 sun hours a day) resulting in 2,127,500 kWh/$415,552 production annually, 100 homes with solar DHW (avg. 50 gals a day usage) resulting in 46,464 kWh/$9,618 and 9,586 therms/$10,160 savings annually
GOVERN - 2	**Government Initiatives**	Office of Energy Management: Create an Office of Environmental Management and Sustainability to promote all forms of cost effective energy efficiency measures within the community	II	2,776	$100,000	$15,000	$5.40	Additional 1% of citywide GHG emissions over specific programs run, 2,776 tonnes
GOVERN - 1	**Government Initiatives**	Sustainability Committee: Continue to work with "Sustainability Subcommittee" for sustainability issues and management	I	2,700	$270,000	$15,000	$5.56	Additional 1% of citywide emissions over specific programs run

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
GOVERN - 17	**Water**	Water Feature Efficiency: Update water feature ordinance to maintain amenity while increasing water and energy efficiency through time of use and seasonal timers	II	333	$291,485	$2,000	$6.01	RM Water pumping is 23,133,761 kWh reduced by 5% saving 1,156,688 kWh
BUILD - 4	**Government Initiatives**	Plan Checking and Permitting: Provide priority services and consider reducing permit fees for green building projects and remodels that reduce resource consumption by 25% over building standards by 25%	II	154	$92,736	$1,000	$6.49	1% of housing stock (100 homes), 16,000 avg kWh usage, 20% kWh savings (3,200 kWh), 1% of commercial stock (8 bldgs.), 40,700 avg kWh usage, 40% kWh savings (16,000 kWh) saving 448,000 kWh
GOVERN - 13	**Renewable Energy**	Solar Ready Ordinance: Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	I	756	$436,603	$5,000	$6.61	100 homes with 10kw solar PV (5.5 sun hours a day) resulting in 2,007,500 kWh/$415,553 production annually ,100 homes with solar DHW (avg. 50 gals a day usage) resulting in 23,232 kWh/$4,809 and 10,785 therms/$16,241 savings annually
WORK - 3	**Commercial Buildings**	Energy-Efficient, Commercial-Sector Lighting: Promote and leverage existing incentives for efficient lighting and educate and locally incent building owners to eliminate any remaining T-12 lamps in commercial buildings	I	704	$258,930	$5,000	$7.10	1,000,000 sq. ft. of facilities retrofitted with efficient lighting, electricity cost of $0.126/kWh, annual lighting usage of 6.85 kWh/sq. ft., 30% savings with retrofit of 2,055,000 kWh/yr.

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
GOVERN - 12	**Renewable Energy**	Public/Private Partnerships: Explore private-public partnerships for renewable energy installations and energy-efficiency upgrades on municipal facilities (performance-based contracts and power purchase agreements)	III	1,376	$505,890	$10,000	$7.27	2,000 kW of solar PV generating 2,007,500 kWh
MOBILITY - 11	**Transportation**	Car Sharing: Promote ZIP and/or other Car Share programs through preferential parking and promotion with signage to serve 5% of existing drivers who each reduce their driving by 25%	III	579	$215,356	$5,000	$8.64	500 car share participants, 30% reduction in vehicle miles, 8,081 avg annual vehicle miles per person before car share, $2.40 cost per car share mile, 19.7 mpg fuel economy 1,212,150 fewer miles driven
RECREATE - 9	**Water**	Irrigation System Controls: Promote the installation of irrigation control sensors at parks and golf courses	II	102	$127,140	$1,000	$9.80	26% savings, 300 acres, 652,000 gallons of water used per acre, $0.0025/gallon, 0.0035 kWh/gallon, $50/acre to install sensor saving 50,856,000 gallons of water, 177,996 kWh,
BUILD - 3	**Commercial Buildings**	New and Efficient Construction: Promote the Savings by Design Program from SCE for new commercial buildings	II	93	$47,215	$1,000	$10.75	Provide information to local builders on how to access and leverage this design assistance. ..25 homes a year
GOVERN - 7	**Government Initiatives**	Efficient and Green New Construction: Expand existing 15% over Title 24 policy so that 100% of new municipal buildings and major remodels adhere to Voluntary Green Building Program standards and are minimum LEED silver or equivalent	II	182	$58,290	$2,000	$10.99	25% electricity and natural gas savings, 100,000 sq. ft., $0.126/kWh, $1.06/therm savings 389,000 kWh, 8,750 therms

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
WORK - 11	**Transportation**	Telecommuting: Promote telecommuting and flex-time for local businesses to achieve and track 200 teleworkers in Rancho Mirage	II	147	$54,579	$2,000	$13.61	CAPPA Calc for Telecommuting, 200 telecommuting employees, one day a week, 16 miles one-way, 19.7 mpg, $3.50 gal/gas, 15,594 gal gas saved /year
WORK - 1	**Commercial Buildings**	Commercial Energy Audits: Work with Desert Cities Energy Partnership to promote energy audits for 1,000,000 square feet of commercial buildings and confirm replacement/upgrade schedule	II	730	$245,658	$12,000	$16.44	1,000,000 sq. ft. community wide (approx. 50 buildings), 15.6 kWh/sq. ft. usage .35 therms/sq. ft. usage, achieve 10% electricity and natural gas savings post-audit, savings of 1,558,000 kWh and 35,000 therms
WORK - 10	**Transportation**	Car-Pooling and Mass Transit: Promote "Shared Vehicle at Work" programs to increase carpooling and mass transit by 20% with a "guaranteed-ride home"	II	114	$22,650	$2,000	$17.54	Increase employee use of alternative transportation by 20%, Assumed 200 employees, 32 mile round trip, 6,472 gallons gas saved ($3.50/gal. of gas)
MOBILITY - 9	**Transportation**	Van Pools: Partner and recognize all Rancho Mirage's major employers with over 50 employees for van pools	II	281	$104,468	$5,000	$17.79	500 employees offered carpool/vanpool, 10% reduction in commute vehicle trips, 25 mile avg. one-way length, 19.7 mpg avg fuel economy...resulting in 588,000 VMT reduction, 29,848 gallons of gas savings annually ($3.50/ gal. of gas)

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
WORK - 6	**Commercial Buildings**	SCE Business Incentives: Promote and leverage existing incentives for efficient lighting and energy efficiency upgrades for small businesses through SCE's Express Solutions Program, for specific industries such as Hospitality, Gov./Institutions, Office, Retail, Small Business, Water Wastewater through SCE's Energy Management Solutions program, and partner with SCE for large businesses through the Continuous Energy Improvement Program (savings from non-PACE-funded projects)	I	112	$49,140	$2,000	$17.86	Efficiency upgrades to 125,000 sq. ft. of commercial space...20% reduction in electricity resulting in savings of 390,000 kWh/yr. Assume about 25 companies
LEARN - 2	**Cross-Cutting Initiatives**	Commercial Sector Green Business: Target and work with minimum of 100 businesses for Green Business Program	II	526	$186,136	$10,000	$19.01	100 businesses targeted, 11,500 kWh and 367 therms saved annually, $0.126/kWh, $1.06/therm saving 1,150,000 kWh, 36,700 therms,
MOBILITY - 12	**Transportation**	Anti-Idling: Pass ordinance that restricts idling of greater than 5 minutes for all commercial vehicles	II	100	$42,000	$2,000	$20.00	50 trucks reduced...Per vehicle, idles 1 hour every day for 240 days a year, 1 gallon of diesel used per hour of idling, 240 gallons per vehicle/yr., $840 per vehicle/yr.
WORK - 5	**Commercial Buildings**	"The Temperature Club:" Promote community partnership through voluntary policies to adjust indoor temperatures upwards by a degree to engage collective savings	II	97	$48,450	$2,000	$20.62	100 business participating, 4000 kWh/yr. reduction 100 therms/yr. reduction.

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
LIVE - 12	**Water**	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the residential sector by 15% community-wide by 2020	II	237	$319,709	$5,000	$21.10	17,218 population, use of 350 gal/home/day, 15% savings under ordinance, domestic water cost of $0.0025/gallon, avg, .0054 kWh energy use per gallon. 127,883,692 gal saved, 690,572 kWh saved
MOBILITY - 10	**Transportation**	Senior Vehicle Tune-Ups: Introduce and implement "Senior Vehicle Diagnostic Program" to target and incentivize seniors to tune and maintain their vehicles on a regular basis	III	235	$93,240	$5,000	$21.28	Assume 100 tune ups a year from 2 "Tune-Up Drives" saving 10% of the fuel of a 5,000 VMT senior vehicle getting 15 mpg, 3,330 gallons of gas saved/yr. for 8 years. Total 26,640 gallons saved. ($3.50/ gal. of gas)
LIVE - 6	Residential Buildings	Energy-Efficient Lighting: Purchase approx. 2,000 compact fluorescent lamps and LEDs for giveaways to demonstrate their value in homes and leverage ten times the number in household and business applications	III	279	$200,376	$6,000	$21.51	2000 bulbs resulting in 88,000 kWh annual savings. Each bulb costs $1.50 and saves 44 kWh/yr.; program administration assumed at $3,000. Each bulb given away leverages an additional 10 purchased through leveraging effect resulting in 880,000 kWh annual savings for a total of 968,000 kWh saved annually
BUILD - 1	**Commercial Buildings**	Sustainable Parking Lots: Program to support existing shade standard through the promotion of parking lot coverings and semi permeable surfaces for new construction to achieve 20% of existing parking lots, and 80% of new parking lots	II	112	$58,415	$2,500	$22.32	500,000 sq. ft. conditioned space community wide (approx. 25 bldgs.), 15.6 kWh/sq. ft. usage, achieve 5% electricity savings with new parking lots, saving 390,000 kWh

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
RECREATE - 10	**Water**	Drought-Tolerant Landscaping: Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	II	41	$14,901	$1,000	$24.39	15-18 hole golf courses in Ranch Mirage ...assume average of 200,000 gal/day...average of 2% energy savings achieved...saving 118,260 kWh/yr
LIVE - 1	**Government Initiatives**	Plan Checking and Permitting: Provide priority services and consider reducing permit fees for homes that exceed Title 24 building standards by 25% through energy-efficiency measures and renewable energy installations	II	1,305	$882,224	$35,000	$26.82	700 homes... 30% kWh savings 5% Natural Gas savings (4,158,000 kWh and 20,300 therms)
LEARN - 3	**Cross-Cutting Initiatives**	Green Building Lectures and Continuing Education: Provide lectures, seminars and training on green building based on training materials emphasizing desert conditions and opportunities	II	177	$94,458	$5,000	$28.25	80 new homes added per year...avg. 3,000 sq..... Assume 25% savings...resulting in 396,000 kWh and 11,780 therms saved annually
RECREATE - 7	**Transportation**	Visitor Shuttles: Collaborate with local hotels and resorts to establish effective point-to-point transportation for visitors, e.g. shuttles to airport, hotels, business district	II	1,744	$24,873	$50,000	$28.67	292,000 trips avoided...100 users per day for 8 years. 9.4 passengers per vehicle, 2.7 leverage factor, 9.8 miles avg trip length, 19.7 avg passenger fuel economy.
RECREATE - 11	**Water**	Golf Course Water Management Recognition: Promote highly efficient irrigation sensors, water pumping and delivery for golf courses with Council recognition	II	162	$211,900	$5,000	$30.86	CAPPA Calc for Irrigation Control Sensors, 500 acres of lawn with irrigation control sensors, $.0025/gal of water, 652,000 gallons of water used per acre, .0035 kWh used per gal, 25% water savings, resulting in 81,500,000 gal saved, 285,250 kWh saved

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
MOBILITY - 1	**Transportation**	Electric Vehicles: Establish public/private partnership to increase the number of electric vehicles by 250, with local added values for consumers	III	1,194	$444,164	$40,000	$33.50	250 new electric cars, 19.7 mpg vehicle replaced, 10,000 average annual miles per vehicle, $0.207/kWh saving 126,904 gallons of gas, ($3.50/ gal. of gas)
RECREATE - 1	**Commercial Buildings**	Comprehensive Pool Efficiency: Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating for 100 pools	II	49	$35,438	$2,000	$40.82	Target 100 additional pools, 1,712 kWh/yr. savings per pump resulting in 171,200 kWh/year
LIVE - 15	**Water**	Landscaper Certification: Require all licensed landscapers to be certified by the CVAG	I	117	$146,700	$5,000	$42.74	30% savings in landscaping water usage, 300 acres of lawn in the community, 652,000 gallons of water used per acre, $0.0025 price per gallon of water, 0.0035/kWh per gallon
RECREATE - 3	**Commercial Buildings**	Green Conferences: Continue to work with hospitality sector to define and promote "green" conference venues, hotels, etc.	II	88	$20,000	$4,000	$45.45	Assume 80 conference days a year...Avg. per "event day" 3 tons solid waste avoided to landfill through conscientious recycling, reusable dishware, double sided printing, reduced promotional paper materials , 2000 kWh saved through special HVAC and lighting management, travel offsets through carpooling, van pooling, and telecommuting or web based participants, carbon offsets of additional energy needs

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
LEARN - 4	**Cross-Cutting Initiatives**	Community Energy Champions: Solicit nominations and promote 10 community Energy Champions each year to show value of efficiency and its energy, dollar, and carbon savings	I	44	$25,216	$2,000	$45.45	Public Relations and Education project stimulating at least 20 untapped homeowners to take significant efficiency action in their homes reducing electricity 30% and Nat Gas 5%
BUILD - 6	**Government Initiatives**	Green Building Support Services: Advance the Voluntary Green Building Program to mandatory green building requirement with technical support services	II	548	$270,015	$25,000	$45.62	Assume avg. of 5 hours of technical support services for 100 new or "gut-rehab" homes at 3,000 square feet average...assume 25% savings off of the typical new construction annual energy usage per sq. ft....resulting in 1,170,000 kWh and 26,250 therms saved annually
BUILD - 9	**Residential Buildings**	Green Homes Tours and Recognition: Provide green builders and green home owners with recognition at Council; administer "Green Homes Tours" annually to showcase six projects each year	II	82	$40,502	$4,000	$48.78	Provide tours at minimal cost to local homes and businesses...Assume 1 tour a year adding 20 new or "gut-rehab "Green homes to programs... average 3000 square foot home... 25% savings off the typical new construction annual energy per square foot...resulting in 175,500 kWh and 3,938 therms saved annually

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
MOBILITY - 2	**Transportation**	Hybrid Vehicles: Establish public/private partnership to increase the number of hybrid vehicles in the community by 600, with local added values for consumers	III	1,974	$723,422	$100,000	$50.66	600 cars saving 349 gallons per vehicle/yr. resulting in 206,692 gallons saved annually ($3.50/ gal. of gas)
MOBILITY - 5	**Transportation**	Eco-Conscious Driving: Promote eco-conscious driving behavior to increase fuel efficiency by 5 - 10% and minimize emissions and maintenance	II	94	$35,000	$5,000	$53.19	400 participants who travel 10,000 miles per year in a vehicle that averages 19.7 mpg, saves 5% or 25 gallons per year after implementing eco-conscious driving behavior.
WORK - 12	**Water**	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the commercial sector by 20% community-wide by 2020	II	170	$273,750	$10,000	$58.82	500 customers, assuming 3,000 gallons of water used per day, saving 20% from ordinance saves 109,500,000 gallons and 591,300 kWh.
WORK - 4	**Commercial Buildings**	Integrated Lighting Systems: Promote SCE's Energy Management Solutions' energy-efficient lighting linked to building controls and occupancy sensors in minimum of 250,000 square feet of commercial space	III	205	$124,070	$15,000	$73.17	250,000 sq. ft. of facilities retrofitted with efficient lighting, electricity cost of $0.126/kWh, annual lighting usage of 6.85 kWh/sq. ft., 35% lighting savings with retrofit of 599,375 kWh
LIVE - 5	Residential Buildings	Pool Pumps: Promote high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve minimum of 2000 units by offering a $50 rebate on top of the $200 SCE rebates	I	986	$705,344	$100,000	$101.42	2000 pumps 1,712 kWh/yr. savings per pump resulting in 3,424,000 kWh/year ...Cost to city is $50 rebate adder on top of SCE $200 rebate.

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
GOVERN - 10	**Government Initiatives**	Retro Commissioning: Abide by the Retro-Commissioning (RCx) Policy and guidelines for qualifying municipal buildings	I	19	$7,708	$2,000	$105.26	2% of Municipal Electricity and Natural Gas 57,409 kWh and 337 therms
GOVERN - 8	**Government Initiatives**	Utility Manager Software: Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	46	$18,974	$5,000	$108.70	5% of Municipal Electricity and Natural Gas 143,521 kWh and 841 therms
LIVE - 14	**Water**	Drought Tolerant Landscaping: Promote and augment CVWD/Rancho Mirage rebate partnership for drought tolerant planting, turf conversion and buy-back	III	215	$532,593	$25,000	$116.55	500 homes, .5 acre yard, 4 gal of gasoline used per lawn annually, 19lbs of VOC produced per mower annually, 652,000 gallons of water used per acre, 0.0035 kWh used per gallon of water
BUILD - 8	**Residential Buildings**	Affordable Housing: Promote the construction of energy-efficient affordable housing with private-sector partners	III	193	$96,900	$25,000	$129.53	100 new housing units, 16,000 kWh and 400 therm typical use annually, 25% savings at 400,000 kWh, 10,000 therms
MOBILITY - 8	**Transportation**	White Bikes: Provide bicycles for daily trips using public/private partnership model	II	38	$6,485	$5,000	$131.58	100 bikes available, avg 2 trips a day per bicycle, 2 mile avg trip length savings 1,853 gallons of gas, ($3.50/ gal. of gas)
RECREATE - 5	**Government Initiatives**	Ball field Lighting Timers: Promote the installation of timers for all ball field or other recreational lighting at schools and city facilities	III	60	$22,076	$10,000	$166.67	120 high-pressure sodium lamps cut back 2 hrs. every day saving 175,200 kWh/yr.
RECREATE - 4	**Commercial Buildings**	Resort Management: Revise management contracts for resorts to include efficiency as a performance metric	III	10	$54,630	$2,000	$200.00	400,000 kWh and 3000 therms

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
GOVERN - 11	**Government Initiatives**	Group Purchasing: Promote and participate in group purchasing of energy efficiency goods and services with other CVAG cities/tribes	II	10	$40,000	$2,000	$200.00	Assume additional measures undertaken from $10,000 of savings to achieve 250,000 kWh savings
MOBILITY - 7	**Transportation**	Bike, Walking, NEV "Parkway:" Support Parkway 1e11 as a Valley amenity and means to alternative forms of transportation and to promote health in Rancho Mirage	I	25	$4,620	$5,000	$200.00	500 weekly trips switching from cars to walking/biking, avg distance 2 miles, 19.7 mpg car displaced, saving 1,320 gallons of gas ($3.50/ gal. of gas)
GOVERN - 14	**Solid Waste**	Recyclable Take-Out Containers: Promote/mandate take-out alternative containers to eliminate use of polystyrene packaging	II	20		$5,000	$250.00	100 lbs. of containers per capita
GOVERN - 9	**Government Initiatives**	Benchmarking: Abide by Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	19	$7,708	$5,000	$263.16	2% of Municipal Electricity and Natural Gas 57,409 kWh and 337 therms
WORK - 9	**Solid Waste**	Food Waste Composting at Restaurants: Increase restaurant composting program for food waste to reach all restaurants that serve more than 100 meals per day	II	16	$17,218	$5,000	$312.50	Leverage restaurant program Route 111...Assume additional 300lbs saved/per cap/yr....assume $1.00 savings per cap/yr.

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	**Efficacy ($/tonne CO_2e)**	Assumptions
RECREATE - 2	**Commercial Buildings**	Net Zero Special Events: Continue to work with the hospitality sector and require special purpose events to be sustainable with net zero energy and waste requirements	II	6	$2,000	$2,000	$333.33	Assume 20 events a year...Avg. Per event ...1 ton solid waste avoided to landfill through conscientious recycling, reusable dishware, double sided printing, reduced promotional paper materials , 2000 kWh saved through special HVAC and lighting management, travel offsets through carpooling, van pooling, and telecommuting or web based participants, carbon offsets of additional energy needs
RECREATE - 6	**Renewable Energy**	Ecotourism: Form public/private partnership to promote eco-tourism and tours of wind farms, solar arrays, and geothermal systems in the Valley	II	12	$125,000	$5,000	$416.67	Increased tourism and awareness of Green Building and alternative energy options in the desert climate
LIVE - 11	**Transportation**	Development Planning: Promote pilot program to bring amenities and limited services into communities to shorten commutes and promote walking	II	12	$4,620	$5,000	$416.67	500 weekly trips switched from vehicles to walking, $3.50 per gallon of gas, 1 mile trip length avoided, 19.7 mpg avg. passenger fuel economy 26,000 vehicle mile reduction, 1,320 gallons of gas
MOBILITY - 4	**Transportation**	Electric Vehicle Charging Stations: Foster public/private partnerships to promote EV charging stations with public access	II	45	$16,716	$25,000	$555.56	10 EV charging stations will save 4,776 gallons of gas used for business commuting ($3.50/ gal. of gas)
LIVE - 13	**Water**	Gray water-Ready Ordinance: Require all new residential development to be constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs	I	6	$52	$5,000	$839.35	100 new homes, use of 350 gal/home/day, 30% savings under ordinance, domestic water cost of $0.0025/gallon, avg, .0054 kWh energy use per gallon.

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
GOVERN - 4	**Government Initiatives**	Municipal Facility Efficiency Upgrades...Payback Threshold Policy: Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	2	$750	$1,845	$922.50	Municipal upgrades (detailed in EAP) with a payback of less then 4 years produce an annual kWh savings of 5,956 kWh realizing 10% of the EAP Energy Efficiency Goal of 60,049 kWh
BUILD - 2	**Commercial Buildings**	"Cool Roofs": Promote the installation of reflective roofing on commercial properties in the community with recognition for first ten early adopters	III	15	$8,714	$15,000	$1,000.00	50,000 sq. ft. of roof installed, $0.126/kWh, $1.06/therm, $0.25/sq. ft. of incremental cost of Energy Star roofing saving 42,100 kWh
LEARN - 5	**Cross-Cutting Initiatives**	Internships: Provide student internships in city government each year to focus on updates to the GHG inventory and the sustainability plan and to promote energy efficiency in Rancho Mirage	I	4		$5,000	$1,250.00	Workforce Development and Riverside County Employment Development Agency
BUILD - 7	**Residential Buildings**	Shade Trees: Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	II	35	$12,240	$56,000	$1,600.00	Assume 250 privately purchased and 250 city purchased trees, $0.126/kWh, 204 kWh saved per mature tree annually, $224 to plant each tree (CAPPA defaults) saves 102,000 kWh
LEARN - 6	**Cross-Cutting Initiatives**	Workforce Development: Promote workforce development in partnership with College of the Desert, UCR, and CSUSB to achieve 1000 "green careers" by 2020	II	4		$10,000	$2,500.00	Workforce Development and Riverside County Employment Development Agency
MOBILITY - 6	**Transportation**	Biking and Walking: Expand bikeways, trails, and walking paths connecting residential neighborhoods and commerce	II	24	$4,620	$200,000	$8,333.33	1000 weekly trips switching from cars to walking/biking, avg distance 1 mile, 19.7 mpg car displaced, saving 1,320 gallons of gas ($3.50/ gal. of gas)

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
GOVERN - 6	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete 100% of remaining Energy Action Plan measures after 10 % savings has been realized (2015-2020)	III	78	$33,759	$962,199	$12,335.88	Implement the remaining 267,930 kWh savings developed in EAP. (2015 -2020) Total EAP savings measures (kWh) = 327,979 kWh
GOVERN - 5	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete balance of municipal facility upgrades (after 4 year payback threshold compliance) to achieve 10 % reduction from 2004 baseline	I	15	$6,816	$190,401	$12,693.37	Assume 60,049 kWh savings required to reach initial EAP 10% savings goal by 2015...5,956 kWh savings realized from 4 year "Payback Threshold Compliance" measure...Leaving 54,093 kWh savings to achieve the remainder of SCE's 10% energy efficiency goal .

GRAND TOTAL OF EMISSION MEASURES	82	60,411	$24,927,424	$2,156,945
2020 EMISSIONS REDUCTION TARGET		54,272		
SURPLUS EMISSIONS REDUCTIONS		6,139		

Table 16: Savings Measures by Least Cost

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
BUILD - 3	**Commercial Buildings**	New and Efficient Construction: Promote the Savings by Design Program from SCE for new commercial buildings	II	93	$47,215	$1,000	$11	-
BUILD - 4	**Government Initiatives**	Plan Checking and Permitting: Provide priority services and consider reducing permit fees for green building projects and remodels that reduce resource consumption by 25% over building standards by 25%	II	154	$92,736	$1,000	$6	448,000
RECREATE - 8	**Transportation**	Neighborhood Electric Vehicles: Commit to design and promote Neighborhood Electric Vehicle program to achieve minimum of 400 NEVs for Valley residents and visitors	II	955	$355,600	$1,000	$1	-
RECREATE - 10	**Water**	Drought-Tolerant Landscaping: Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	II	41	$14,901	$1,000	$24	118,260
RECREATE - 9	**Water**	Irrigation System Controls: Promote the installation of irrigation control sensors at parks and golf courses	II	102	$127,140	$1,000	$10	177,996
GOVERN - 4	**Government Initiatives**	Municipal Facility Efficiency Upgrades...Payback Threshold Policy: Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	2	$750	$1,845	$923	5,956

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
RECREATE - 1	**Commercial Buildings**	Comprehensive Pool Efficiency: Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating for 100 pools	II	49	$35,438	$2,000	$41	171,200
RECREATE - 2	**Commercial Buildings**	Net Zero Special Events: Continue to work with the hospitality sector and require special purpose events to be sustainable with net zero energy and waste requirements	II	6	$2,000	$2,000	$333	2,000
RECREATE - 4	**Commercial Buildings**	Resort Management: Revise management contracts for resorts to include efficiency as a performance metric	III	10	$54,630	$2,000	$200	400,000
WORK - 2	**Commercial Buildings**	Peak Demand Reduction: Collaborate with SCE and encourage 150 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	505	$183,000	$2,000	$4	8,000
WORK - 5	**Commercial Buildings**	"The Temperature Club:" Promote community partnership through voluntary policies to adjust indoor temperatures upwards by a degree to engage collective savings	II	97	$48,450	$2,000	$21	4,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
WORK - 6	**Commercial Buildings**	SCE Business Incentives: Promote and leverage existing incentives for efficient lighting and energy efficiency upgrades for small businesses through SCE's Express Solutions Program, for specific industries such as Hospitality, Gov./Institutions, Office, Retail, Small Business, Water Wastewater through SCE's Energy Management Solutions program, and partner with SCE for large businesses through the Continuous Energy Improvement Program (savings from non-PACE-funded projects)	I	112	$49,140	$2,000	$18	390,000
WORK - 8	**Commercial Buildings**	Commercial On-Bill Financing/Repayment: Encourage On-Bill Financing/Repayment through SCE and SCG with green messaging and teamwork in the community	I	1,440	$591,535	$2,000	$1.39	4,680,000
LEARN - 1	**Cross-Cutting Initiatives**	Save a Ton Campaign: Work with CVAG to develop and locally market the Save a Ton campaign, unlocking energy, dollar, and carbon savings in 30% of the housing stock	I	2,906	$1,764,308	$2,000	$1	7,920,000
LEARN - 4	**Cross-Cutting Initiatives**	Community Energy Champions: Solicit nominations and promote 10 community Energy Champions each year to show value of efficiency and its energy, dollar, and carbon savings	I	44	$25,216	$2,000	$45	-
GOVERN - 10	**Government Initiatives**	Retro Commissioning: Abide by the Retro-Commissioning (RCx) Policy and guidelines for qualifying municipal buildings	I	19	$7,708	$2,000	$105	57,409

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
GOVERN - 11	**Government Initiatives**	Group Purchasing: Promote and participate in group purchasing of energy efficiency goods and services with other CVAG cities/tribes	II	10	$40,000	$2,000	$200	250,000
GOVERN - 3	**Government Initiatives**	Desert Cities Energy Partnership: Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	930	$665,124	$2,000	$2	3,229,138
GOVERN - 7	**Government Initiatives**	Efficient and Green New Construction: Expand existing 15% over Title 24 policy so that 100% of new municipal buildings and major remodels adhere to Voluntary Green Building Program standards and are minimum LEED silver or equivalent	II	182	$58,290	$2,000	$11	389,000
LIVE - 4	**Residential Buildings**	On-Bill Finance/Repayment: Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	I	2,114	$532,178	$2,000	$0.95	-
LIVE - 7	**Residential Buildings**	Peak Demand Reduction: Partner with SCE to provide and augment local promotion, through local media and the MirageScape newsletter, of the residential Summer Discount Program to cut peak demand in 10% of the housing stock	I	406	$291,820	$2,000	$5	1,409,760
MOBILITY - 12	**Transportation**	Anti-Idling: Pass ordinance that restricts idling of greater than 5 minutes for all commercial vehicles	II	100	$42,000	$2,000	$20	-

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
MOBILITY - 3	**Transportation**	"Golf Cars:" Promote existing program to achieve minimum of 250 new registered vehicles by 2020	III	597	$222,082	$2,000	$3	-
WORK - 10	**Transportation**	Car-Pooling and Mass Transit: Promote "Shared Vehicle at Work" programs to increase carpooling and mass transit by 20% with a "guaranteed-ride home"	II	114	$22,650	$2,000	$18	-
WORK - 11	**Transportation**	Telecommuting: Promote telecommuting and flex-time for local businesses to achieve and track 200 teleworkers in Rancho Mirage	II	147	$54,579	$2,000	$14	-
GOVERN - 17	**Water**	Water Feature Efficiency: Update water feature ordinance to maintain amenity while increasing water and energy efficiency through time of use and seasonal timers	II	333	$291,485	$2,000	$6	1,156,688
BUILD - 1	**Commercial Buildings**	Sustainable Parking Lots: Program to support existing shade standard through the promotion of parking lot coverings and semi permeable surfaces for new construction to achieve 20% of existing parking lots, and 80% of new parking lots	II	112	$58,415	$2,500	$22	390,000
BUILD - 5	**Government Initiatives**	Green Building Program: Promote the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	548	$270,015	$2,500	$5	1,170,000
LIVE - 8	**Residential Buildings**	Household Efficiency Audits: Partner with SCE and SCG to provide local promotion for the Home Energy Efficiency Survey to "self-audit" homes	II	1,251	$671,187	$2,500	$2	1,921,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
RECREATE - 3	**Commercial Buildings**	Green Conferences: Continue to work with hospitality sector to define and promote "green" conference venues, hotels, etc.	II	88	$20,000	$4,000	$45	2,000
LIVE - 2	**Renewable Energy**	Solar "Model Citizens": Promote solar photovoltaic systems and solar thermal systems by recognizing up to 100 homeowners who demonstrate energy sustainability in their neighborhoods	II	758	$435,332	$4,000	$5.28	2,173,964
BUILD - 9	Residential Buildings	Green Homes Tours and Recognition: Provide green builders and green home owners with recognition at Council; administer "Green Homes Tours" annually to showcase six projects each year	II	82	$40,502	$4,000	$49	175,500
LIVE - 3	Residential Buildings	Residential PACE: Partner and aggressively promote Residential PACE Program to reach 25% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems in eight years	I	11,546	$5,945,212	$4,000	$0.35	28,407,566
WORK - 3	**Commercial Buildings**	Energy-Efficient, Commercial-Sector Lighting: Promote and leverage existing incentives for efficient lighting and educate and locally incent building owners to eliminate any remaining T-12 lamps in commercial buildings	I	704	$258,930	$5,000	$7	2,055,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
WORK - 7	**Commercial Buildings**	Commercial PACE Program: Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	II	5,129	$2,174,689	$5,000	$0.97	16,743,081
LEARN - 3	**Cross-Cutting Initiatives**	Green Building Lectures and Continuing Education: Provide lectures, seminars and training on green building based on training materials emphasizing desert conditions and opportunities	II	177	$94,458	$5,000	$28	396,000
LEARN - 5	**Cross-Cutting Initiatives**	Internships: Provide student internships in city government each year to focus on updates to the GHG inventory and the sustainability plan and to promote energy efficiency in Rancho Mirage	I	4		$5,000	$1,250	-
GOVERN - 8	**Government Initiatives**	Utility Manager Software: Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	46	$18,974	$5,000	$109	143,521
GOVERN - 9	**Government Initiatives**	Benchmarking: Abide by Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	19	$7,708	$5,000	$263	57,409
GOVERN - 13	**Renewable Energy**	Solar Ready Ordinance: Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	I	756	$436,603	$5,000	$7	2,030,732

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
RECREATE - 6	**Renewable Energy**	Ecotourism: Form public/private partnership to promote eco-tourism and tours of wind farms, solar arrays, and geothermal systems in the Valley	II	12	$125,000	$5,000	$417	-
GOVERN - 14	**Solid Waste**	Recyclable Take-Out Containers: Promote/mandate take-out alternative containers to eliminate use of polystyrene packaging	II	20		$5,000	$250	-
LIVE - 10	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by an additional 10% to 88.8% by 2020 potentially through awareness programs, recognition, tiered rate structures, and other financial instruments	II	2,050	$200,000	$5,000	$2	-
LIVE - 9	**Solid Waste**	Solid Waste Diversion: Increase solid waste diversion rate by 5% to 78.8% by 2015 potentially through use of tiered rate structure	I	1,011	$100,000	$5,000	$5	-
WORK - 9	**Solid Waste**	Food Waste Composting at Restaurants: Increase restaurant composting program for food waste to reach all restaurants that serve more than 100 meals per day	II	16	$17,218	$5,000	$313	-
GOVERN - 15	**Transportation**	Electric Vehicle Charging Stations: Seek grant funding and private sector partnerships to install 10 EV charging stations on public and private property. (Initial locations to be selected by highest concentration EV areas)	II	3,821	$1,419,600	$5,000	$1	-
GOVERN - 16	**Transportation**	Transit Oriented Development: Promote transit oriented development (Section 19) to foster development in line with mass transit corridors	II	1,811	$181,100	$5,000	$3	-

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
LIVE - 11	Transportation	Development Planning: Promote pilot program to bring amenities and limited services into communities to shorten commutes and promote walking	II	12	$4,620	$5,000	$417	-
MOBILITY - 10	Transportation	Senior Vehicle Tune-Ups: Introduce and implement "Senior Vehicle Diagnostic Program" to target and incentivize seniors to tune and maintain their vehicles on a regular basis	III	235	$93,240	$5,000	$21	-
MOBILITY - 11	Transportation	Car Sharing: Promote ZIP and/or other Car Share programs through preferential parking and promotion with signage to serve 5% of existing drivers who each reduce their driving by 25%	III	579	$215,356	$5,000	$9	-
MOBILITY - 5	Transportation	Eco-Conscious Driving: Promote eco-conscious driving behavior to increase fuel efficiency by 5 - 10% and minimize emissions and maintenance	II	94	$35,000	$5,000	$53	-
MOBILITY - 7	Transportation	Bike, Walking, NEV "Parkway:" Support Parkway 1e11 as a Valley amenity and means to alternative forms of transportation and to promote health in Rancho Mirage	I	25	$4,620	$5,000	$200	-
MOBILITY - 8	Transportation	White Bikes: Provide bicycles for daily trips using public/private partnership model	II	38	$6,485	$5,000	$132	-
MOBILITY - 9	Transportation	Van Pools: Partner and recognize all Rancho Mirage's major employers with over 50 employees for van pools	II	281	$104,468	$5,000	$18	-

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
LIVE - 12	**Water**	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the residential sector by 15% community-wide by 2020	II	237	$319,709	$5,000	$21	690,572
LIVE - 13	**Water**	Gray water-Ready Ordinance: Require all new residential development to be constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs	I	6	$52	$5,000	$839	-
LIVE - 15	**Water**	Landscaper Certification: Require all licensed landscapers to be certified by the CVAG	I	117	$146,700	$5,000	$43	-
RECREATE - 11	**Water**	Golf Course Water Management Recognition: Promote highly efficient irrigation sensors, water pumping and delivery for golf courses with Council recognition	II	162	$211,900	$5,000	$31	285,250
LIVE - 6	**Residential Buildings**	Energy-Efficient Lighting: Purchase approx. 2,000 compact fluorescent lamps and LEDs for giveaways to demonstrate their value in homes and leverage ten times the number in household and business applications	III	279	$200,376	$6,000	$22	968,000
LEARN - 2	**Cross-Cutting Initiatives**	Commercial Sector Green Business: Target and work with minimum of 100 businesses for Green Business Program	II	526	$186,136	$10,000	$19	1,150,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
LEARN - 6	**Cross-Cutting Initiatives**	Workforce Development: Promote workforce development in partnership with College of the Desert, UCR, and CSUSB to achieve 1000 "green careers" by 2020	II	4		$10,000	$2,500	-
RECREATE - 5	**Government Initiatives**	Ball field Lighting Timers: Promote the installation of timers for all ball field or other recreational lighting at schools and city facilities	III	60	$22,076	$10,000	$167	175,200
GOVERN - 12	**Renewable Energy**	Public/Private Partnerships: Explore private-public partnerships for renewable energy installations and energy-efficiency upgrades on municipal facilities (performance-based contracts and power purchase agreements)	III	1,376	$505,890	$10,000	$7	2,007,500
WORK - 12	**Water**	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the commercial sector by 20% community-wide by 2020	II	170	$273,750	$10,000	$59	591,300
WORK - 1	**Commercial Buildings**	Commercial Energy Audits: Work with Desert Cities Energy Partnership to promote energy audits for 1,000,000 square feet of commercial buildings and confirm replacement/upgrade schedule	II	730	$245,658	$12,000	$16	1,558,000
BUILD - 2	**Commercial Buildings**	"Cool Roofs": Promote the installation of reflective roofing on commercial properties in the community with recognition for first ten early adopters	III	15	$8,714	$15,000	$1,000	42,100

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
WORK - 4	**Commercial Buildings**	Integrated Lighting Systems: Promote SCE's Energy Management Solutions' energy-efficient lighting linked to building controls and occupancy sensors in minimum of 250,000 square feet of commercial space	III	205	$124,070	$15,000	$73	599,375
GOVERN - 1	**Government Initiatives**	Sustainability Committee: Continue to work with "Sustainability Subcommittee" for sustainability issues and management	I	2,700	$270,000	$15,000	$6	-
GOVERN - 2	**Government Initiatives**	Office of Energy Management: Create an Office of Environmental Management and Sustainability to promote all forms of cost effective energy efficiency measures within the community	II	2,776	$100,000	$15,000	$5	-
BUILD - 6	**Government Initiatives**	Green Building Support Services: Advance the Voluntary Green Building Program to mandatory green building requirement with technical support services	II	548	$270,015	$25,000	$46	1,170,000
BUILD - 8	**Residential Buildings**	Affordable Housing: Promote the construction of energy-efficient affordable housing with private-sector partners	III	193	$96,900	$25,000	$130	400,000
MOBILITY - 4	**Transportation**	Electric Vehicle Charging Stations: Foster public/private partnerships to promote EV charging stations with public access	II	45	$16,716	$25,000	$556	-
LIVE - 14	**Water**	Drought Tolerant Landscaping: Promote and augment CVWD/Rancho Mirage rebate partnership for drought tolerant planting, turf conversion and buy-back	III	215	$532,593	$25,000	$117	-

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
LIVE - 1	**Government Initiatives**	Plan Checking and Permitting: Provide priority services and consider reducing permit fees for homes that exceed Title 24 building standards by 25% through energy-efficiency measures and renewable energy installations	II	1,305	$882,224	$35,000	$27	4,158,000
MOBILITY - 1	**Transportation**	Electric Vehicles: Establish public/private partnership to increase the number of electric vehicles by 250, with local added values for consumers	III	1,194	$444,164	$40,000	$34	-
RECREATE - 7	**Transportation**	Visitor Shuttles: Collaborate with local hotels and resorts to establish effective point-to-point transportation for visitors, e.g. shuttles to airport, hotels, business district	II	1,744	$24,873	$50,000	$29	-
BUILD - 7	**Residential Buildings**	Shade Trees: Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	II	35	$12,240	$56,000	$1,600	102,000
LIVE - 5	**Residential Buildings**	Pool Pumps: Promote high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve minimum of 2000 units by offering a $50 rebate on top of the $200 SCE rebates	I	986	$705,344	$100,000	$101	3,424,000
MOBILITY - 2	**Transportation**	Hybrid Vehicles: Establish public/private partnership to increase the number of hybrid vehicles in the community by 600, with local added values for consumers	III	1,974	$723,422	$100,000	$51	-

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	**Estimated Implementation Cost to City**	Efficacy ($/tonne CO_2e)	Kilowatts Savings Per Hour (kWh)
GOVERN - 5	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete balance of municipal facility upgrades (after 4 year payback threshold compliance) to achieve 10 % reduction from 2004 baseline	I	15	$6,816	$190,401	$12,693	5,956
MOBILITY - 6	**Transportation**	Biking and Walking: Expand bikeways, trails, and walking paths connecting residential neighborhoods and commerce	II	24	$4,620	$200,000	$8,333	
GOVERN - 6	**Government Initiatives**	Municipal Facility Efficiency Upgrades: Complete 100% of remaining Energy Action Plan measures after 10 % savings has been realized (2015-2020)	III	78	$33,759	$962,199	$12,336	267,930
		GRAND TOTAL OF EMISSION MEASURES	82	60,411	$24,927,424	**$2,156,945**		94,078,363
		2020 EMISSIONS REDUCTION TARGET		54,272				
		SURPLUS EMISSIONS REDUCTIONS		6,139				

Table 17: List of Potential Sustainability Ordinances

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
LIVE - 12	**Water**	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the residential sector by 15% community-wide by 2020	II	237	$319,709	$5,000	$21	17,218 population, use of 350 gal/home/day, 15% savings under ordinance, domestic water cost of $0.0025/gallon, avg, .0054 kWh energy use per gallon. 127,883,692 gal saved, 690,572 kWh saved
LIVE - 13	**Water**	Gray water-Ready Ordinance: Require all new residential development to be constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs	I	6	$52	$5,000	$839	100 new homes, use of 350 gal/home/day, 30% savings under ordinance, domestic water cost of $0.0025/gallon, avg, .0054 kWh energy use per gallon.
LIVE - 15	**Water**	Landscaper Certification: Require all licensed landscapers to be certified by the CVAG	I	117	$146,700	$5,000	$43	30% savings in landscaping water usage, 300 acres of lawn in the community, 652,000 gallons of water used per acre, $0.0025 price per gallon of water, 0.0035/kWh per gallon
WORK - 12	**Water**	CVWD Water Efficient Landscape Ordinance: Build on and exceed current CVWD landscape water conservation ordinance in the commercial sector by 20% community-wide by 2020	II	170	$273,750	$10,000	$59	500 customers, assuming 3,000 gallons of water used per day, saving 20% from ordinance saves 109,500,000 gallons and 591,300 kWh.
BUILD - 5	**Government Initiatives**	Green Building Program: Promote the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	548	$270,015	$2,500	$5	100 new or "gut-rehab" homes at 3,000 sq. ft. avg...assume 25% savings off of typical new construction annual energy usage per sq. ft....resulting in 1,170,000 kWh and 26,250 therms saved annually

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO_2e)	Annual Savings	Estimated Implementation Cost to City	Efficacy ($/tonne CO_2e)	Assumptions
BUILD - 6	**Government Initiatives**	Green Building Support Services: Advance the Voluntary Green Building Program to mandatory green building requirement with technical support services	II	548	$270,015	$25,000	$46	Assume avg. of 5 hours of technical support services for 100 new or "gut-rehab" homes at 3,000 square feet average...assume 25% savings off of the typical new construction annual energy usage per sq. ft....resulting in 1,170,000 kWh and 26,250 therms saved annually
GOVERN - 7	**Government Initiatives**	Efficient and Green New Construction: Expand existing 15% over Title 24 policy so that 100% of new municipal buildings and major remodels adhere to Voluntary Green Building Program standards and are minimum LEED silver or equivalent	II	182	$58,290	$2,000	$11	25% electricity and natural gas savings, 100,000 sq. ft., $0.126/kWh, $1.06/therm savings 389,000 kWh, 8,750 therms
GOVERN - 14	**Renewable Energy**	Solar Ready Ordinance: Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	I	756	$436,603	$5,000	$7	100 homes with 10kw solar PV (5.5 sun hours a day) resulting in 2,007,500 kWh/$415,553 production annually, 100 homes with solar DHW (avg. 50 gals a day usage) resulting in 23,232 kWh/$4,809 and 10,785 therms/$16,241 savings annually
GOVERN - 18	**Water**	Water Feature Efficiency: Update water feature ordinance to maintain amenity while increasing water and energy efficiency through time of use and seasonal timers	II	333	$291,485	$2,000	$6	RM Water pumping is 23,133,761 kWh reduced by 5% saving 1,156,688 kWh
		Ordinance Savings Total	9	2,897	$2,066,619	$61,500		